

# Municipal Journal

Volume XXXII.

NEW YORK, JANUARY 18, 1912.

No. 3

## REPAIR AND RENEWAL OF PAVEMENTS

### Method of Determining When it Becomes More Economical to Renew a Pavement Than to Continue to Repair it—Each Street an Individual Problem—Application in Practice

By J. E. BARLOW, Engineer of the Cincinnati Bureau of Municipal Research

At some period in the life of a pavement, resurfacing becomes more economical than continued repairing. The following is offered as a method of determining this point:

In solving any particular case the following factors should be known:

1. Net cost of the surfacing. In order to complete one whole cycle in its life this cost should include not only the furnishing and laying of the surfacing, but also the cost of removing, making due allowance for any salvage value, if it has such.

2. The year the pavement was laid and the amount expended for repairs.

With such data as a basis the problem is approached from the standpoint of annual expense. Such expense is made up of various factors, of which, however, the following are here considered to be the only variables\* dependent on the age of the pavement:

- (a) Sinking fund to replace the capital invested.
- (b) Annual cost of repairs during the life of the pavement.

As the life of the pavement increases the necessary annual payment to the sinking fund decreases, while the annual cost of repairs increases. It is believed that the proper time to renew the surfacing is when the sum of these two variables is a minimum. Under such conditions the public would have had the use of the pavement during its life at a minimum cost per year, the entire capital invested being still intact.

Perhaps examples will best illustrate this principle. The most complete published records on the annual cost of repairs are for asphalt pavements, of which the following is an example†: The average cost of repairs per square yard for the asphalt pavements in Syracuse during the sixth year was \$0.003, seventh year \$0.011, eighth year \$0.014, etc. (For succeeding years see columns 1 and 2 in Table I.)

On these repair data as a basis and assuming that the net cost of the surfacing is \$1.40 per square yard Table I is worked out.

\*The interest charges are a constant and the annual cost of a modern Portland Cement concrete foundation is practically so. The annual cost of cleaning, the wear and tear to vehicles, the tractive resistance, etc. might increase with age, particularly with some block pavements, but no account is here taken of these. Likewise, no account is taken of inconvenience to traffic caused relatively by continued repairs or by renewal, of relative noise, appearance, comfort to those riding. These factors could readily be included in the above discussion for a particular case if they could be reduced to money values. They all operate to make the renewal of a pavement surfacing advisable at a somewhat earlier period than the economic one as determined herein.

† Paper by H. C. Allen, 1910 Convention American Society Municipal Improvements.

*Column 1.* This shows the age of the surfacing. For brevity let N represent any year in the life of the pavement.

*Column 2.* This gives the amount of money expended per square yard for repairs during the Nth year.

*Column 3.* This merely gives the cumulative sum of the amounts in Column 2—in other words, the total amount expended to the Nth year inclusive for repairs.

*Column 4.* This shows the average cost of repairs per square yard per year up to the Nth year inclusive. This is merely Column 3 divided by Column 1.

*Column 5.* This contains the amount per year to be paid to the sinking fund to redeem in N years the net cost of the surfacing assumed to be \$1.40 per square yard. Interest is taken at 4 per cent. and the sinking fund payments are made semi-annually.

*Column 6.* This gives the sum of Columns 4 and 5.

Column 1.	TABLE I. Cost of repairs, per sq. yd.			Yearly payment to a s. f. for \$1.40.	Sum of columns 4 and 5.
	Yearly. 2.	Cumula- tive. 3.	Average yearly. 4.		
6th year	\$0.003	\$0.003	\$0.0005	\$0.204	\$0.2045
7th "	.011	.014	.0020	.172	.174
8th "	.014	.028	.0035	.147	.1505
9th "	.028	.056	.0062	.128	.1342
10th "	.035	.091	.0091	.113	.1221
11th "	.056	.147	.0134	.1005	.1139
12th "	.085	.232	.0193	.090	.1093
13th "	.127	.359	.0276	.0815	.1091
14th "	.169	.528	.0377	.074	.1117
15th "	.219	.747	.0498	.0676	.1174
16th "	.251	.998	.0625	.062	.1245

Thus, for example, in the 12th year the cost of repairs was \$0.085 per square yard; the total amount expended for repairs to the end of 12th year was \$0.232; the average cost of repairs per square yard per year to the end of the 12th year was \$0.0193; the annual payment to the sinking fund to redeem \$1.40 at the end of 12 years is \$0.090. If the pavement is torn up at the end of the 12th year the annual cost for sinking fund and repairs during that 12 years would be \$0.1093. For economy this last figure should be a minimum. On the basis of our data it is seen that the economical point comes during the 13th year. If the net cost is assumed greater the economical point would come at a later period.

Plotting these data we secure the curves in Figure 1, which are numbered to correspond with their individual columns. They merely show graphically the results in the table.

In the preceding example the average cost of repairs was used. This takes no account of *when* such expenditures were made; i.e., the item of interest is neglected. Table

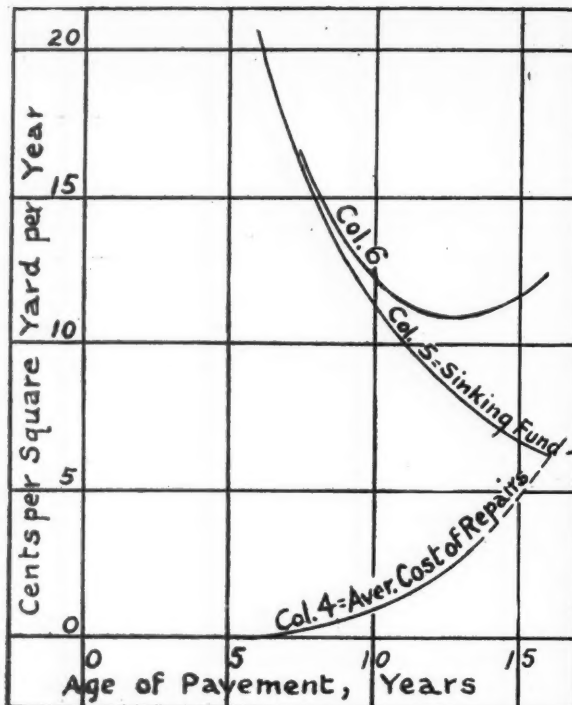


FIG. 1.—CURVES PLOTTED FROM TABLE I.

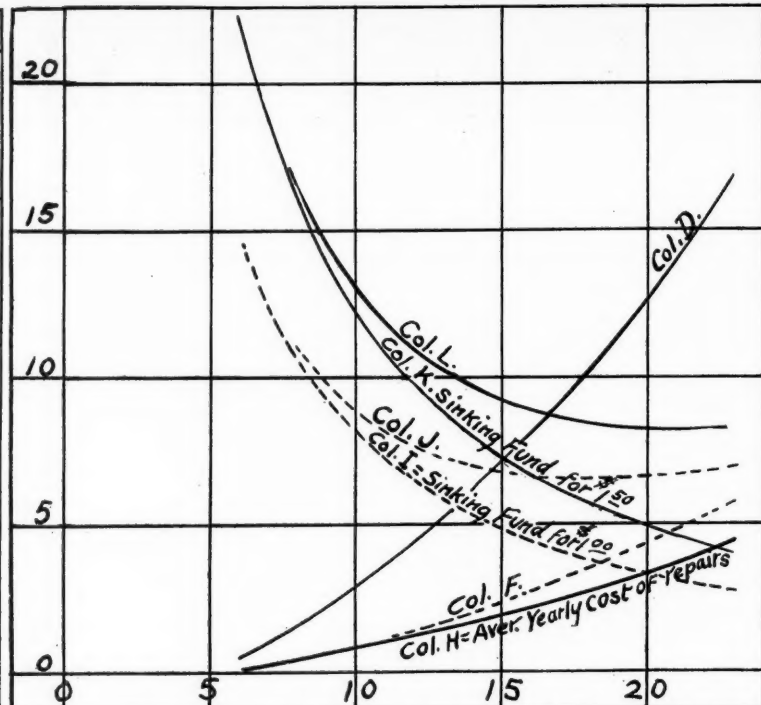


FIG. 2.—CURVES PLOTTED FROM TABLE II.

II is worked out to include this item in the cost of repairs. Column A gives the age of the surfacing, which, as before, for convenience call N.

Columns B, C and D are used merely to get a typical value for the annual cost of repairs. They are taken from the published cost of repairs to the asphalt pavements in the Borough of Brooklyn, which gives unusually complete data.

Column B gives the numbers of streets N years old in 1910 used in obtaining the average costs shown in Column C. The results in Column C were then plotted, from which curve the values in Column D were taken and are used in the computation. This was done to secure smooth curves as illustrative.

Columns E and F are determined as before and are included merely as a comparison with Columns G and H.

Column G shows the cumulative amount expended for repairs during the N years, together with compound interest at 4 per cent.

Column H shows the amount which would have to be put aside annually during the N years at 4 per cent. to equal corresponding figures in Column G. In other words, it is the amount of money that would have to be put aside annually during the N years to pay for all repairs during that time.

Column I shows annual payment to sinking fund on basis of \$1 as net cost of surfacing. Four per cent. interest and semi-annual payments are assumed.

Column J gives sums of Columns H and I.

Columns K and L are similar to Columns I and J, except worked out on a basis of \$1.50 as net cost of surfacing.

The table shows that with \$1 as the net cost the economical point for renewal comes during the 18th year; with \$1.50 about the 21st year. Plotting these results we secure the curves shown in Figure 2, lettering them to correspond with their respective columns.

Curves J and L at the minimum points are rather flat, showing that with the data used there is a period of several years during which the surfacing may be renewed without material difference in economy.

Curves F and H are interesting as they show the relative difference in the methods of computing the annual cost of repairs.

On this basis it is seen that no general rule can be applied indicating when to resurface a street. Each street is an individual problem which this method automatically solves for its own peculiar traffic, quality of surfacing, and other conditions. For example, the low repair cost prolongs the life, if a particularly good asphalt surfacing was secured, or a high cost shortens it if the reverse is true. Moreover, its accuracy depends upon the gross amount of money spent annually for each surfacing, which from an accounting standpoint is probably more accurately kept than that of any physical measurements of areas replaced. Investigation along these lines would probably

TABLE II.

Column A.	No. streets used to secure typical data.	Cost of repairs, per sq. yd.				Cumulative cost of repairs, per sq. yd., int. at 4%.	Yearly cost of repairs, per sq. yd., int. at 4%.	Yearly payment to a s. f. to redeem \$1.	Sum of columns H and I.	Yearly payment to a s. f. to redeem \$1.50.	Sum of columns H and K.
		Yearly.	Yearly, from curve.	Cumulative.	Average yearly.						
6th year	236	\$0.6055	\$0.005	\$0.005	\$0.0008	\$0.005	\$0.0007	\$0.1462	\$0.1469	\$0.2193	\$0.2200
7th "	323	.0192	.010	.015	.0021	.0152	.0019	.1227	.1246	.1841	.1860
8th "	343	.0170	.016	.031	.0039	.0318	.0033	.1052	.1085	.1578	.1611
9th "	321	.0261	.022	.053	.0059	.0551	.0050	.0916	.0966	.1374	.1424
10th "	302	.0291	.029	.082	.0082	.0863	.0070	.0807	.0877	.1211	.1281
11th "	300	.0326	.036	.118	.0107	.1258	.0090	.0718	.0808	.1077	.1167
12th "	276	.0364	.044	.162	.0135	.1752	.0116	.0645	.0761	.0967	.1083
13th "	272	.0432	.052	.214	.0165	.2342	.0136	.0582	.0718	.0874	.1010
14th "	226	.0626	.062	.276	.0197	.3056	.0162	.0529	.0691	.0794	.0956
15th "	142	.0730	.072	.348	.0232	.3898	.0189	.0483	.0672	.0725	.0914
16th "	103	.0915	.082	.430	.0269	.4874	.0216	.0443	.0659	.0665	.0881
17th "	68	.0810	.092	.522	.0307	.5989	.0245	.0408	.0653	.0612	.0857
18th "	51	.1075	.102	.624	.0347	.7249	.0273	.0377	.0650	.0566	.0839
19th "	36	.1135	.113	.737	.0388	.8669	.0302	.0349	.0651	.0524	.0826
20th "	32	.1255	.125	.862	.0431	1.0265	.0333	.0325	.0658	.0487	.0820
21st "	28	.1100	.130	1.001	.0477	1.2066	.0365	.0302	.0667	.0454	.0819
22d "	21	.1540	.153	1.154	.0525	1.4079	.0398	.0282	.0670	.0423	.0821
23d "	12	.1940	.168	1.322	.0570	1.6322	.0430	.0264	.0694	.0396	.0826

show that many pavement surfacings are continued in use long past the economical point.

In considering any given pavement of course it is not necessary to make up a complete table as in the preceding examples; merely figure the annual cost for several years past and if this cost is decreasing it is not yet time to replace the pavement; if on the other hand it is increasing then renewal is more economical. Also by estimating ahead the probable cost of repairs for the next few years it can be determined whether such expenditure will be economical. In any given case, of course, the actual expenditure for repairs will likely not produce as smooth curves as those used here unless they are plotted and a curve drawn to average values.

A card system of repair records could be kept along these lines, a card for each street, which would automatically call attention to any pavement on which resurfacing would prove an economy. This principle is applicable to any article which as it grows older is subject to an increasing annual repair cost with consequent more or less frequent renewals.

In the preceding discussion for several practical reasons a sinking fund based on the original cost has been used rather than a replacement fund based on renewal cost. As a matter of fact, if the cost of repaving differs materially from the cost of the present surfacing the period of time for which a minimum cost should be determined should cover the life of both surfacings, in which case the element of interest would then become an important variable. The consideration of this would result in the shortening of the life of the higher-priced surfacing and prolonging the less expensive one. However, for practical purposes such a determination would be an unnecessary refinement.

### HORSE TROUGH AND LIGHT STANDARD

THE city of Poughkeepsie, N. Y., has in service a concrete watering trough, combined with a cluster of lights supported by a central standard, which is considered very effective.

This circular concrete watering trough is 9 feet outside diameter and 2 feet 9 inches in height above the pavement. In the center and extending 15 inches above the rim is a pedestal supporting a reinforced concrete bridge standard with a cluster of seven lights. A subway is provided where the supply and waste pipes and electric wires may be ex-



POUGHKEEPSIE WATERING TROUGH BY NIGHT.



POUGHKEEPSIE WATERING TROUGH BY DAY.

amined. With the exception of the light standard this is one solid piece of concrete, much of it being poured.

One of these concrete troughs cost \$200, but two can be constructed for \$300.

Such a trough provides not only a convenient place for the refreshment of horses, but the light standard serves a very useful purpose, and the whole is a satisfactory decoration for a street intersection.

### A NEW MUNICIPAL OFFICE

By Dr. Ernst C. Meyer Associate Editor, The Government Accountant.

Suggested by the article by J. T. Fetherston in the October 18, 1911, issue of MUNICIPAL JOURNAL, page 495.

It has been suggested that an independent municipal authority be created to supervise and verify physical records in the same manner in which a controller supervises and verifies the accounts of a city. This suggestion is based upon the proposition that a systematic presentation of physical records is desirable, and that it is of sufficient importance to safeguard against the misrepresentation of data to warrant the creation of such an independent office.

It is the province of the city controller to discover, through vigilance from day to day during the entire year, dishonesty in the handling of city money and to determine the legality of city expenditures. When a city official is dishonest the city suffers a direct financial loss. The city may, however, through inefficient administration suffer a financial loss which, while equally as real, is not as surreptitious. Those conversant with existing conditions in our cities declare that by far larger sums of public money are lost or wasted through inefficient administration than through graft and dishonesty.

A city official who misrepresents the facts which are supposed to express what his administration has accomplished, who deceives the public concerning the number of men employed or equipment operated, and the services rendered with a view of crediting himself with the performance of services which have not been rendered, thereby stamping his administration as more efficient than it in reality is, commits an act which, while not fraught with legal retribution as in case of the embezzlement of public funds, possesses much the same moral quality and financial effect. He robs the public through inefficient service and seeks to prevent detection through falsification or misrepresentation of the facts of the case.

The motive for such falsification may be purely personal or egotistical, or it may be political. The party or clique in power naturally strives to decorate itself with the laurel of ability and accomplishment, particularly at the expense of the preceding administration. Obviously records of physical facts of administration may also be unintentionally and inadvertently incorrect. But whatever the mo-



tive, such a misrepresentation of physical records may be fraught with serious consequences of financial loss. It is of supreme importance that all facts published by a city concerning services rendered and men and equipment employed should possess reliability to the same degree demanded in financial reports.

It is hardly necessary to emphasize here the fact that reliable physical records are fundamental to efficiency studies. If the premises for such studies are wrong, the deductions necessarily must also be so. It is for this reason that the suggestion concerning the creation of an independent authority to insure accuracy in physical records, and to assume the responsibility therefor, as does a controller for his accounts, acquires tremendous significance.

Such an authority would be of service also in introducing uniformity in the methods of keeping physical data, and uniformity in the presentation of same for all departments of the city. It would also be a clearing house for general inquiries concerning matters of services rendered. An official acting in this capacity could be a local leader through whom the movement for uniform methods of keeping physical data in all cities of a State and for the entire country could be greatly accelerated. The plan is recommended for serious consideration by all who are interested in the cause of improved physical records and who appreciate their significance as a fundamental requisite in the measurement of administrative efficiency.

## WATER WORKS MANAGEMENT

**Superintendent Must Have Mechanical Ingenuity, Knowledge of Construction, Hydraulics and Business—  
Rates—Accounting—Efficiency**

In a paper before the New England Water Works Association, W. H. Richards, engineer and superintendent of the water and sewer department of New London, Conn., outlined what he believed would be the lines of development of efficiency in water works management, believing that the day is not far distant when the management of both public and private plants will be judged by the costs. He believes that in the case of a municipal plant the water board should be non-political and its duties be strictly separated from the executive part of the work, being confined to matters of general policy, approval of expenditures, appropriations, general plans, formulation of rules, etc.; appointment by subordinates and removal of the same being made only on recommendation of the general manager, superintendent or whatever title may be given to the executive head.

The superintendent, while not necessarily a graduate engineer, should certainly be a man who is mechanically ingenious, capable of interpreting a drawing, or making one, if necessary, having a thorough knowledge of construction and tools and capable of rapidly acquiring (if he does not already have) a knowledge of the fundamental principle of hydraulics; while above all else he should understand the principles of business. Such a man cannot be obtained without an adequate salary. His powers as well as his responsibilities should be large. At the outset many policies must be tested and problems solved by the superintendent. Among these may be the material best adapted for the water mains, considering character of water and other local conditions, and the same is true of service pipe, the quality of water, pressure, etc., having a bearing upon the choice of material, size and weight of such pipe. The selection of type of water meter, the separation of the theoretical from the practical in regard to the purification of water, etc., also require good judgment. In selecting a designing or consulting engineer (the superintendent should not be expected to be either) the board might remember

that a six weeks' trip to Europe inspecting foreign plants is not sufficient to make an expert of an engineer—nor of a commissioner.

In the matter of rates it should be remembered that every gallon of water has a fixed value dependent upon the cost, capacity of the work and expense of maintaining it. If the rates permit one man to get two gallons for the cost of one, then the man who uses one gallon and pays for it pays part of the other man's water rate. The cost of the water system and its maintenance except for proper cost for extinguishing fires, should be borne by the consumer in proportion to the amount of water used. The practice of furnishing water free to city departments, hospitals and other institutions, as well as furnishing extra fire protection free to certain parties who are patrons of certain insurance companies, is not only unjust to the rate-payers, but makes impossible a statement of the measure of efficiency. If a park or pleasure ground is laid out on lands controlled by a public water department, this should be charged to the park department. A system of accounting with other departments should be provided which will credit the water department with water or other services furnished to them, and on the other hand charge it with replacing of street surfaces or other services received from them.

A precise system of accounting should be carried out faithfully. Under existing conditions it is usually impossible to tell whether the works are efficiently managed or not from the published accounts. A balance sheet is of rare occurrence in a water report, and an inventory or any charge for depreciation is still more rare. In one case the president of a water company furnishes all the water pipe used and a relative furnishes all the coal without competition, and the consumer pays for both in high rates.

The reports should show all details of operation and be used intelligently as a basis for management. Of what use is a meter when 30 per cent. of the water is lost through leaking joints in the pipe and 20 per cent. by waste in public buildings? If the plant is one of any size the superintendent must have some regular system for checking the work of his employees. A large part of his time is consumed in the office, deciding a multitude of problems, from the color of paint to quality of yarn, from the probable register of an obstructed meter to the efficiency of his pumps, and he cannot therefore supervise the work of his subordinates in person, but should be able to through a system of reports.

## INCINERATOR FOR PASADENA

MAYOR WILLIAM THUM of Pasadena, Cal., is endeavoring to obtain or formulate specifications for a refuse incinerator, which he states that the city is in duty bound to have in operation by August 14 of this year. In order to prepare specifications which will not only secure the desired results, but which shall also be within the operating limitations of incinerators now available, he has requested the various makers of incinerators to assist him by informing him what they are willing to guarantee for their respective plants. His object, we suppose, is to prepare a set of general specifications under which any of the manufacturers of high grade plants can bid in competition, but which at the same time may be sufficiently definite to form a basis for such bidding and for comparison of the bids. In general the specifications will provide that all guarantees must be absolutely secured; that the plant must work satisfactorily when operated at periods as short as eight hours a day, and start up satisfactorily after having been shut down for forty-eight hours. The designs must also permit of the addition of other units when needed. Garbage and other matter, including carcasses of horses and cows, must be consumed without giving off any perceptible odor. Fuel consumption, net cost of destruction per ton, and steam



production must be guaranteed, as must also the amount of repairs required during the first period, the length of which period is to be stated. The length of the trial period required must also be stated.

The capacity of the plant is to be 40 to 45 tons per twenty-four hours. The refuse will consist approximately of 75 per cent. kitchen garbage and 25 per cent. rubbish; although the proportion of rubbish to garbage may increase materially later on. If possible, he desires to have the results of operating the incinerator conditioned on the analyses of the refuse as that may vary from time to time in the future within certain specified limits. The garbage is now being fed to hogs, but analyses have been made of it, and these analyses will be continued.

### PITTSBURGH TUBERCULOSIS HOSPITAL

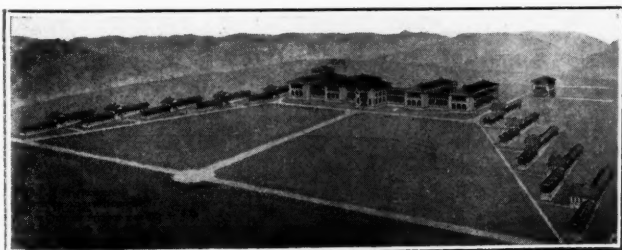
AFTER having spent over \$8,000,000 in a successful effort to stamp out typhoid fever by supplying its people with filtered water, the city of Pittsburgh will soon have under way the construction of a municipal tuberculosis hospital, in which victims of the white plague, in both the incipient and advanced stages, will be given treatment.

In November, 1910, the people of Pittsburgh at the polls voted for a bond issue of \$240,000 for the construction of this hospital, but difficulties in choosing a suitable site have caused delay in the construction. However, a site for the infirmary has been practically decided on, which is well adapted for the purpose intended, being more or less isolated, yet readily accessible. It has been approved both by the Tuberculosis Commission and the Academy of Medicine of Allegheny County.

Tentative plans for the hospital have been prepared by Architects Kiehnel and Elliott, of Pittsburgh, and submitted to the City Council by Dr. E. R. Walter, Director of the Department of Health, and will in all probability be approved. The site most favored is already owned by the city, and no appropriation will be necessary for this.

The plans call for a building of concrete and steel, to be faced with white terra cotta, and designed in such a manner that additions can be built on as needed. Two hundred and fifty beds are provided for in the main building, and pavilions skirting the main structure will be erected for the treatment of incipient cases. However, it is expected over 800 beds will eventually be placed in the hospital, and that further provision will be made for the incipient cases.

The need of such a hospital supported by the city is shown by the fact that there are in Pittsburgh to-day 4,000 cases of tuberculosis. Nearly 38 per cent. of these are in the incipient stage, 37 per cent. moderately advanced, and the balance far advanced. These figures, given by Dr. Walters, are believed to account for only about 60 to 75 per cent. of the tuberculosis cases really existing, as there are many cases in wealthy families which are never reported.



PROPOSED PITTSBURGH TUBERCULOSIS HOSPITAL.

Many of these people, while they would not for a moment consider going to the State hospital for treatment, will readily go into an institution in their own city where they can receive visits from their family or friends. Bos-

ton has already built a municipal tuberculosis hospital, and Chicago is reported to have appropriated \$1,000,000 for a similar institution.

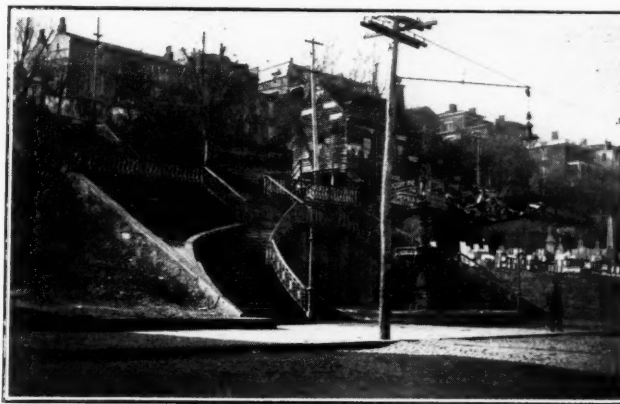
The death rate for 1911 from tuberculosis in Pittsburgh is 130.08 per 100,000 inhabitants, which is a slight increase over the figures recorded for 1910.

This is one of the improvements urged by the Pittsburgh Industrial Development Commission, and as a result of its efforts it is expected that construction work on the new tuberculosis hospital will be started in the near future.

### TREATMENT OF STEEP STREETS

It is generally theoretically possible to so lay out the street system on even the steepest hillside that no street grades will be impracticable for either teams or pedestrians; and the city engineer who fails to do this as completely as property owners and council will permit is in most cases open to severe criticism. In many cities, however, streets have already been laid out years ago which have been given the steepest grades practicable, and the engineer must then use his ingenuity in doing the best possible with existing grades.

In some cases a narrow roadway may be made to wind



STEPS ON LINE OF NINTH ST., LYNCHBURG, VA.

back and forth within the bounds of a wide street; in others a retaining wall may be built across the street in the middle of the block, where the upper half of the street ends ten to thirty feet higher than does the lower half, each half being run in on a flat grade from the end of the block; or the roadway may be abandoned altogether and only foot traffic provided for.

For this purpose steep inclines, winding paths or steps



ALTERNATE STEPS AND WALK, LYNCHBURG.

may be used, or two or more combined. The illustrations (we were unfortunately unable to obtain clearer photographs) show the use of steps, and of steps and inclines combined, both in Lynchburg, Va., which has a number of the steepest streets to be found in the Eastern States. The former is in the line of Ninth street, and shows the use of stone balusters and fountains in ornamenting the construction.

## MUNICIPAL EMPLOYEES

### Methods of Regulating Their Salaries and Promotions— Entrance Salaries and Increases—Rules for Promotion—Efficiency Records

One of the most difficult problems connected with the reformation of the control of municipal work is that of securing and retaining a competent force of officials and employes, objections being found to the operation of the civil service method in many cities and to that of political influence in all cases, we believe. It is difficult to see why, in this respect, a city could not and should not be conducted along the same lines as a large private corporation. Managers of such corporations find the same difficulties as are experienced by the managers of municipal departments.

A short time ago a large private corporation in New York City appointed a committee to provide a system for regulating the salaries and promotion of its employes, and a circular of instructions for this committee was prepared by Leonhard Felix Fuld, examiner of the Municipal Civil Service Commission of New York. An outline of the system recommended by him, nearly if not all of which would be applicable to a municipal department, was prepared. These instructions he divided into eight heads, namely, census of employes (for the purpose of preparing a condensed and authentic statement of present conditions), determination of titles, determination of entrance salaries, increase in salaries, promotions, promotion board, and efficiency records. Under the first head it is proposed to take a census of all employes by having each furnish on a form the following information regarding himself:

- (a) Name and address.
- (b) Date of birth.
- (c) Date of original entrance into service of corporation.
- (d) Present annual salary.
- (e) Present title.
- (f) Department or bureau in which employed.
- (g) A full and complete descriptive account of the duties actually performed by the employe at the present time.

This form will be on a card, and the card, when filled out and before forwarding it to the committee in charge of the matter, will be endorsed by the head of the department or bureau, with a statement that the employe to whom it refers performs his duties as efficiently as, more efficient than, or not as efficiently as the majority of employes in his department or bureau. If it is his opinion that the employe performs his duties more efficiently than or not as efficiently as the majority of employes in his department, he must also give a specific statement of the reasons for his opinion. The auditor's office will also endorse on each card the date on which the employe was first employed by the corporation, his entrance salary and title, each date on which his salary was increased or decreased, the amount of his salary in each case, and his official title in each case.

The committee will then prepare a skeleton organization plan showing the various positions occupied by the employes of the corporation. Titles will be selected for all employes, which will be descriptive of the duties performed by the incumbents. The plan will also show the line of responsibility running from the employes in a subordinate position to those acting in a supervisory capacity. The

committee will obtain the information needed for the preparation of this skeleton plan by an independent study of the administrative organization of the corporation, and by a careful study of the full and complete descriptive account of the duties actually performed by each employe as given by himself on his census card.

The committee will fix the entrance salary for each position in the service of the corporation. It will study carefully the salaries paid by other corporations for similar grades of work, and be careful not to make the entrance salaries higher than those paid by other corporations. (As a rule, a high entrance salary does not attract into the service of a corporation the most desirable employes. Better employes are secured by a fair entrance salary, coupled with the prospect of certain and rapid promotion when the employe has mastered the duties of his new position.) The corporation will grant an annual increase in salary of 10 per cent. of the entrance salary to every employe who has during the preceding four quarters of the year received a meritorious rating on his efficiency record. No employe will receive more than ten such increases in any single position, and no employe will be required to take any examination for such an increase in salary.

A promotion from a lower to a higher position, where such promotion involves a distinct change in the duties to be performed by the employe, will be allowed only after a competitive examination. In such a promotion examination the seniority of the employes, their efficiency records, and their fitness for the higher position, as determined by the written examination, will be given consideration.

A promotion board is provided consisting of the president, one director and the superintendent. (The personnel of this board would naturally vary according to the subdivision of the executive and administrative duties in the city in question.) This board will determine the subjects and weights of promotion examinations, and will rate the efficiencies on their efficiency records at the end of each quarter.

The committee will establish a system of contemporaneous efficiency records for all employes in the service of the corporation. These records will be used in connection with salary increases and promotion examinations. Entries in these efficiency records will be made quarterly. Each head of bureau or department will at the end of each quarter submit to the promotion board a report on the efficiency of his employes. In this respect he will divide his employes into three classes: those who have performed satisfactory work, those whose work has been distinctly above the average of the employes in his department, and those whose work has been distinctly below the average of employes in his department. In the case of employes who are considered either above or below the average of the department, the reporting officer will give a special statement of his reason for the opinion expressed by him. The promotion board will rate the average satisfactory employes B, the employes who are above the average A, and the employes who are below the average C. Employes who receive a rating of A for four consecutive quarters will, at the end of the fourth quarter, receive an increase in their salaries amounting to one-tenth of their entrance salary, without examination. Employes who receive a rating of C in any quarter will be notified by the promotion board that if they receive a rating of C at the end of the next quarter their services will be dispensed with.

In determining the efficiency of their employes, heads of departments and bureaus will consider the quantity of their work, the quality of their work, their general conduct, their capacity for initiative, and their punctuality and attendance. The promotion board may disregard the recommendation of a reporting officer with reference to an A or a C employe when the reasons assigned by the reporting officer are, in its judgment, insufficient.



# Municipal Journal

and Engineer

Published Weekly at

50 Union Square (Fourth Ave. and 17th St.), New York

By Municipal Journal and Engineer, Inc.

Telephone, 2805 Stuyvesant, New York.

Western Office, 1441 Monadnock Block, Chicago

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## SUBSCRIPTION RATES

United States and possessions, Mexico, Cuba...\$3.00 per year

All other countries..... 4.00 per year

Entered as second-class matter, January 3, 1906, at the Post

Office at New York, N. Y., under the Act of

Congress of March 3, 1879.

## CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper, either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

JANUARY 18, 1912.

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## When to Resurface Pavements

WE call special attention to the article on page 85 of this issue, in which the author describes a method of determining at what time of its life it is most economical to stop repairing a pavement and to resurface it. Some have claimed that in the case of an asphalt pavement it is never economical to take up good asphalt, and that in almost no such pavement does the time ever arrive when more than ten to twenty-five per cent. of the surface needs renewing, unless repairing has been grossly neglected. But the figures and reasoning of Mr. Barlow seem to prove that this is not the case. This point we will discuss at some length next week.

Only asphalt pavements are used as illustrations in this article, but it is stated that the method applies equally to all kinds of pavements. It seems to us, however, that its practical applicability to block pavements—aspalt, brick, wood

or stone—needs further demonstration; or at least the effect upon the method of modifying, if not controlling, characteristics of such pavements needs further study.

Careful consideration should also be given to the points referred to by the author as being difficult to express in dollars and cents. Tillson has said that where traffic is as heavy as in New York's busiest thoroughfares, the cost of a pavement should not be considered, since the difference in cost between different kinds of pavement is less important than meeting the requirements of the traffic in the best manner practicable. For the same reason there may well be streets where the all-important question is whether traffic will in the long run be less inconvenienced by a complete tearing up of all the pavement and relaying the same at the present time, or by a continuation of patching for one or more years longer.

We do not intend to belittle the importance of Mr. Barlow's method. It is the only one yet published, we believe, offering a scientific solution of the question from the financial point of view. We merely wish to call attention to the fact that, under some conditions, there may be other considerations even more important than those which have their immediate expression in dollars and cents.

## Machinery in Trench Work

It is not so many years since practically all excavating of both earth and rock was done entirely by manual labor, the only machinery of any kind employed in such work being in connection with the vehicles for removing the excavated material. A great change, however, has been brought about by the introduction of the rock drill wherever the amount of the rock excavation warrants the employment of a steam plant, and the steam shovel has taken the place of a large percentage of the labor formerly used in digging railroad cuts and other large excavation projects. But in the digging of trenches for sewers, water pipes and the like, which is generally looked upon as the most undesirable form of labor connected with municipal improvements, the pick and shovel in the hands of foreign labor is still employed in the great majority of cases.

While the greater economy secured by the use of machinery for rock drilling and large excavation work is now unquestioned, we believe that a considerable inducement to their introduction in the first place was the increasing scarcity of labor and the fact that the contractor was made more independent in case of strikes and demands of the laborers for higher wages. So far the supply of low grade laborers from abroad has been sufficient to meet all demands for trench work; but if history repeats itself, as it shows every indication of doing, the nationalities which now engage in this work will, within another generation or two, feel themselves above this class of labor, and contractors will be hard put to it to find laborers for this dirty and more or less dangerous work. This threatening situation, combined with the object lesson afforded by the use of the machinery above referred to in decreasing unit cost and increasing speed of work, will undoubtedly bring about the more or less general use of machinery in trench excavations within the next few years.

We are aware that there are a number of trench excavators on the market which have a more or less extensive use; that there are contrivances for raising and transporting the excavated material in buckets and back filling the same; but the use of these is as yet limited in geographical extent and in the dimensions of the trenches and nature of the soil which can be handled.

There are, we believe, three general classes of machines used for trench excavation, one consisting of an endless chain of buckets carried by a movable arm which is lowered into the trench; the second a wheel carrying buckets upon its circumference, the wheel revolving and being raised or lowered bodily to the depth desired; and the



steam shovel described in our issue of Jan. 4. Each of these discharges into carts or cars along side of the trench, or else leaves the material piled up there to be afterward back filled by hand, scraper or otherwise. Still another method of excavating was described by us a few months ago, this being employed in sewer work in Brooklyn, N. Y., where the sandy soil mixed with a considerable amount of water was lifted from the trench by a pump and the mixture discharged on the finished sewer behind as back filling.

The last named method is especially adapted to sand, but could not be used for handling gravel or soil carrying any considerable amount of this. The other methods would seem to require a soil which is comparatively stable and will stand unsupported until the trench has been carried to practically its full depth before any sheeting is placed. Moreover the two machines first named, which are ordinarily much lighter than the steam shovel, are apt to be more or less injured if they strike boulders or other unyielding obstructions. And they all, except the pumping method, require rehandling of the material for back filling.

We suggest to municipal engineers, sewer contractors and others that they bear in mind the increasing demand for a machine or mechanical method for doing away with a very large percentage of hand labor in trench work, no matter what the characteristic of the soil; and suggest that a contrivance which will combine the strength of the steam shovel, the convenience and uninterrupted operation of the endless chain bucket excavator and the transporting facilities of the bucket transporters commonly known as trench machines would, we believe, be welcomed by the progressive sewer contractors (provided, of course, that the contrivance is practical, does not require constant repairing and tinkering—in fact, is reasonable in both purchase and maintenance costs and does not delay the work by getting out of order); and we believe that labor conditions are rapidly approaching which will make such a contrivance not only economical but almost essential.

### CITY CLUB OF CHICAGO

THE City Club of Chicago was organized in December, 1903, to effect a combination of thoughtful, open-minded, public-spirited citizens. The club has grown in membership and in scope of work undertaken, and on January 8 opened a new clubhouse six stories high, all of which is used by the club. The first five floors are devoted to ordinary clubhouse purposes, such as lounging and reading rooms, library, dining rooms, etc. The sixth floor is largely devoted to exhibits connected with municipal matters, and temporarily these exhibits are extended into the fifth and fourth floors also. These exhibits cover the subjects of finance, statistics, education and recreation, charities, health, civil service, public safety, city planning, municipal art, streets, traffic, etc. A considerable number of these exhibits are, we believe, those which were shown by the city in the Municipal Congress and Exposition held in Chicago last year.

The extent of the field which this club attempts to cover is indicated by the titles of the committees through which it works. These are as follows: Municipal art; burial costs; charitable, reformatory and penal agencies; city planning; civil service; public education; fire protection and building regulations; harbors, wharfs and waterways; public health; housing conditions; administration of justice; labor conditions; light and telephone service; reduction of noise; public parks, play grounds and baths; political nominations and elections; postal service; publicity statistics; municipal revenues and expenditures; short ballot; streets, alleys and bridges; traffic and transportation; water supply, drainage and sewerage.

### HOQUIAM'S COMMISSION GOVERNMENT

THE city of Hoquiam, Wash., which has a population of 9,000 or 10,000, was the first second-class city in the State to adopt commission form of government. The city does not own either gas, electric light or water plants, but these are all operated by private corporations. The government issues each month the minutes of the meetings of the commission, which are held weekly, also the financial reports of fire department, city engineer, chief of police, commissioner of public works and of other departments and officials of the city; also an itemized statement of the expenses for the month prepared by the city clerk. This gives every citizen the fullest opportunity for knowing just what his commissioners are doing and just how they are spending the city's funds. In probably the majority of cities the first class of information is given by the daily papers, which report all meetings of council, board of public works and other official bodies; but the details of expenditures are not usually available to the average citizen until the publication of the annual report of the city, which is usually deferred for months and in some cases even years after the expenditures were made. It is unnecessary to point out the greater opportunity which is thus offered for keeping in touch with the work of the city departments and checking up the economy and efficiency of such work.

### STONE PAVEMENTS AS FOUNDATIONS

TO THE EDITOR OF MUNICIPAL JOURNAL,  
50 Union Square, New York:

SIR—Apropos of Mr. George C. Warren's letter to THE MUNICIPAL JOURNAL, which appeared in the issue of Jan. 4, 1912, regarding the suitability of old stone pavements as a foundation for sheet asphalt, I would state the following: That the stone block foundations of the old pavements have served a useful purpose in the Borough of Manhattan there can be no question in the opinion of the writer, who has been connected with the construction of pavements in the before-mentioned borough for more than 20 years. Where these foundations have remained undisturbed there has been no appreciable difference in the amount of repairs required over a concrete foundation. Nor should there be, so long as this essential requirement of stability is met. The present bad condition of the asphalt pavements in the borough is not due to the type of foundation, but to the large extent to which the pavements have been opened up and a lack of supervision in the replacements. It matters little what material be used, whether durable or not, the pavements are bound to get in bad repair from the cause alluded to—lack of proper supervision in replacements. A notable instance is afforded in the bad condition of the wooden block pavements in some streets, due, not to any inherent defect in the material, but to frequent replacements in which due care is not exercised to lay the new surface even with the old, in not obtaining close joints, and in various other ways.

The writer is in entire accord with Mr. Warren in his statement that the old stone pavements where undisturbed make a good foundation for a sheet asphalt pavement, and this under even very heavy traffic conditions. He has in mind two avenues in the borough where the traffic is similar in quantity and kind, and where one foundation is stone and the other concrete. The difference in the amount and character of the repairs made is not enough to indicate that the stone pavement foundation is not as efficient as the concrete. The avenues referred to are Eighth avenue, between 13th and 59th streets, and First avenue, between 59th and 109th streets. The traffic on both of these avenues is very heavy. The pavement on the former street is five years old and on the latter 14. I am,

Yours very truly,

DANIEL B. GOODSSELL.

Jan. 10, 1912.

## NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

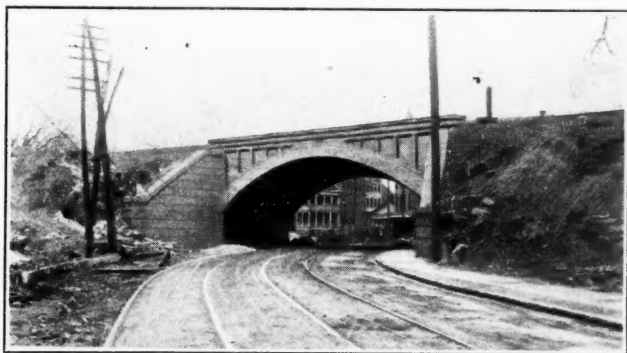
## ROADS AND PAVEMENTS

## Plan to Improve Road to Deming

El Paso, Tex.—El Paso is to be on the ocean to ocean highway if the plans proposed by the El Paso Automobile Association are carried out. At a recent meeting at the Chamber of Commerce it was decided to take up with the El Paso Chamber of Commerce and the Deming Chamber of Commerce the matter of improving the road to Deming from El Paso. It is on condition that this road be put in good shape and logged that the national tourists will come this way instead of going over the route by the Grand Canyon.

## New Concrete Culvert Over Roadway

Schenectady, N. Y.—The accompanying illustration shows the modern concrete culvert which now spans Villa Road.



Courtesy Schenectady Gazette.

VILLA ROAD CULVERT.

The new culvert is paved with sheet asphalt and is wide enough to permit the double tracking of the line of the Schenectady Railway through the streets.

## Saved City \$4,708.03

Bristol, Va.—In his report to the city council, Street Commissioner S. D. Keller shows that by handling the city's stone crushing independently of contractors, he saved for the municipality during 1911 \$4,708.03. He crushed 11,483 yards of stone at a cost of 69 cents a yard, as against \$1 per yard heretofore paid to contractors.

## County Stone for Road Use

Newark, N. J.—Coincident with the organization of the county prisons committee of the Board of Freeholders at the penitentiary, Director Evans submitted a proposition to his colleagues having for its object the employment of prisoners and the use of stone from the county quarries on the county roads. The purchase of one or two stone crushers at a cost of about \$2,000 each, and as many auto trucks, constructed expressly for the carting and spreading of stone, at a cost of about \$2,200 each, is involved in the plan. The director, who was chairman of the roads and assessments committee in the old board, declared that he had given the matter of county road repairs much thought, and was convinced that his plan would save money. He pointed to the fact that the quarries on the penitentiary grounds contained the best road stone in this part of the country, but that no real effort has been made to use it. Instead, the county has been paying contractors for much poorer material, and the carting of it to distant points has added materially to the burden of the taxpayers. With the auto trucks, a sample of which, he said, he had seen in operation, he believed that time and money could be saved and much better work done. At least forty prisoners could be kept employed, Mr. Evans said, if the quarries were worked as he suggested. He added that an estimate as to the probable output of the quarries had been made. With one stone-crusher there was stone enough to make the operations last at least nine years. The director said he had made no special effort to get prices on either stone-crushers or auto trucks.

## Will Use Convict Labor to Build Roads

Austin, Tex.—Governor Colquitt will try the experiment of working 500 penitentiary convicts upon the public roads of the State without placing them under armed guards or other surveillance. In letters to the county judges of Tarrant and Dallas counties, tendering the use of convicts for road construction, he says: "I want to offer the convicts the opportunity to do this work who will promise upon their honor that they will not attempt to escape and not require the expense of guards to watch over them, taking off the stripes and, to all intents and purposes, giving them their freedom, with the exception of requiring them to work as indicated during the remainder of their term of sentence. I would want a representative of the State to be with them, whose duty it would be to see that good, wholesome food was supplied to the convicts. We can supply you with bridge carpenters, blacksmiths, quarrymen and in fact, a complete road gang. We offer you the services of these men for the cost of their maintenance and 50 cents per day. I would want 25 cents per day of this amount to go to the family of the convict and 25 cents of it to go into the treasury of the penitentiary system."

## Sixteen-Inch Gravel Roads Are Good

Lockhart, Tex.—The county commissioners feel much elated over the way the macadamized roads have stood the terrible weather during the past two months. Some of these roads have been laid for seven years and so far have shown no signs of giving way. It is now thought the method used in this county will be continued, as it seems to be just what is needed for the black mud for a bottom. Sixteen inches of gravel well rolled and leveled with a bottom layer of coarse gravel is used here, and it is all that is expected of it. An effort will be made in the near future to lay a county road joining the towns of Lockhart and Luling. This road will be in a manner similar to the public highways being built in other sections.

## City Commission Plan Improving Port Aransas

Port Aransas, Tex.—The new officers of the City Commission, recently elected, are planning several decided improvements for the city. The first to receive their attention will be the straightening out of some few of the streets and the grading of the same; also seeing that lot owners build sidewalks in front of their property; also the laying out of a boulevard to the beach of about 80 feet in width to be known as the Beach Boulevard. The Gulf beach is one of the finest along the coast for bathing and fishing and a splendid automobile drive for twenty miles up and down the shore, and the boulevard is necessary for automobiles or other conveyances to reach the beach.

## Contract System for Street Work

Milwaukee, Wis.—The city will expend \$2,397,450 in street work in 1912 if plans submitted to the Board of Estimates are provided for in the new budget, which will be submitted to the Council within a week. The greater part will be done by the contract system, instead of by the city, as planned last year. Of the total, \$1,332,450 will be paid by the city and \$1,065,000 assessed against property owners. Approximately \$1,775,000 in street work will be let to contractors as follows: Asphalt, 1,000,000 square yards at \$1.50, \$1,500,000; stone blocks, 50,000 square yards at \$3.50, \$175,000; macadam, 10,000 square yards at \$1, \$100,000. Total, \$1,775,000. Of this amount the city can assess \$1,065,000 against property, leaving a balance of \$710,000 of contract work to be paid for by the city. Provision is made for \$375,000 of paving between street car tracks, \$87,500 of block paving and \$15,000 worth in front of city property, a total of \$477,500, leaving \$1,198,500 to be expended by the city. In addition the following expenses are figured in: Materials and supplies, \$66,600; salaries and wages, \$62,400, and horse and team hire, \$3,250, leaving a net amount of \$1,332,450. The plan also is to purchase a \$600 testing apparatus; \$1,000 worth of equipment; a \$2,500 asphalt mixer and a \$7,500 tandem street roller.



### All Railroad Crossings in City Rebuilt

Houston, Tex.—Approximately one-half of the 700 railroad crossings in Houston have been rebuilt in compliance with a city ordinance finally passed by the council July 18, 1911. Two or three of the companies have finished their work and have sent the detailed reports to the public service commissioner. Others are in the midst of the work at the present time, having been stopped by the heavy rains of recent weeks. Four-inch pine planks are being laid between the rails and to the end of the ties on the outside of the rails, and the whole thoroughly spiked. A steel rail is laid on the inside of the traffic rails to reinforce the plank, and the whole is covered with gravel, or shell, providing a serviceable crossing. Sixty days from July 18, 1911, was the time set by the city council for the completion of all crossings, with a penalty attached for failure to comply with the ordinance within that period of time.

### City Lays Many Miles of Pavement

Niagara Falls, N. Y.—According to the annual report submitted to Mayor Keller by Frederick S. Parkhurst, Jr., during the present year 2,647 miles of pavement have been laid at a cost of \$117,857.16. This gives Niagara Falls at present 35,387 miles of pavement, including all the main streets. One mile of pavement is under contract for next year, and the engineer is preparing plans for over four miles of new pavement. The city has at present about 371,363 square yards of asphalt pavement and 64,465 square yards of bitulithic pavement, giving a total of 435,848 square yards of bituminous pavements. About 42 per cent. of the total will be out of guarantee. In 1912 54 per cent. of the total bituminous pavement will be out of guarantee. Pavement costing \$3 per square yard, which is laid under a five-year guarantee, it is estimated will cost for repairs eleven years after eight cents per square yard. In order that the 209,760 square yards of bituminous pavement be properly maintained during 1913 there should be expended about \$16,780. This amount will increase each year thereafter.

## SEWERAGE AND SANITATION

### City Orders Foodstuff Screened

Dallas, Tex.—The first screening ordinance becomes effective January 1. It requires stands upon the sidewalks to be raised at least two feet above the sidewalk and to be screened with not coarser than fourteen-mesh wire. City Chemist Hamner has had inspectors notify all dealers in fruits and vegetables of the fact that the ordinance goes into effect on the date named. Dr. Hamner says he intends to have all violators of the ordinance arrested.

### Building Base for Sewer

Washington, D. C.—In the building of the foundations for the new sewer which is to be constructed in Anacostia at the foot of Chicago street, the contract for which was recently awarded to the Clark & Winston Company, it is estimated that 2,350 piles and 250,000 feet of lumber will be used, and that the placing in position of this great quantity of material will require several months' work. The piles will be brought from along the Potomac, but the lumber will be brought from Georgia and the south in vessels, the loading of which will be started as soon as possible. It is understood that work on the sewer will be commenced early in the spring, or before, if the weather conditions will allow.

### Public Towel Goes

New Haven, Conn.—With the New Year there went into effect throughout Connecticut a law putting a ban on public drinking cups, and as a result no one could get a drink in any public institution unless he had his individual cup. The common towel also comes under the ban of the new law, and not one hangs in its accustomed place.

### Abolition of Cooking Stands Ordered

Montgomery, Ala.—No more cooking stands on the streets of Montgomery. The city commission so decided at its legislative meeting when an ordinance was adopted, forcing the street lunch stands to close up business. Montgomery has several of these street restaurants, in the form of little carts where sandwiches, sausages, fish, etc., are cooked and served from the stands on the streets, principally to negroes and country people. Much complaint has been made to the commission regarding them and they were declared to be nuisances and ordered closed.

### Will Test New Sewer System at Dixon

Dixon, Cal.—Dixon's new \$40,000 sewer system, constructed during the summer and fall, is expected to be ready for acceptance by the city within a week or ten days. Within a few days it will be tested. With the \$40,000 the city secured the sewer system, septic tank and a twenty-three-acre park, the racetrack property. The latter will be converted into a public park.

### Mayor Asks Citizens to Cleanse Premises

Dallas, Tex.—The recent epidemic of spinal meningitis in Dallas has caused Mayor W. M. Holland to issue a proclamation asking all Dallas people to clean and disinfect thoroughly their premises at once, to burn all trash and filth and spread unslaked lime around damp places in yards. All theaters and moving picture shows are to be thoroughly disinfected. The City Hall and jail have been thoroughly disinfected, as were all street cars. The streets are being washed off with flushing machines and sprinkled in the residence districts. The sidewalks downtown are to be washed, Mayor Holland says, and merchants and business men will be asked not to sweep the dust out into the street, but to let it be washed off and flushed into the street drains. Disinfectants are being put in all sewers and gutters. Dr. A. Sophian, an associate of Dr. Simon Flexner, of the Rockefeller Institute, the discoverer of the Flexner meningitis serum, has arrived from New York with a supply of serum and will be prepared to administer it and to assist generally in the study and control of the disease. He will probably visit Fort Worth, Houston, Waco and other cities in Texas, where there are cases of meningitis.

## WATER SUPPLY

### Water Famine Imminent If Waste Keeps Up

Jersey City, N. J.—Street and Water Board officials were somewhat disturbed to find that the waste of water due to the cold spell has resulted in a tremendous increase in the daily consumption of water. While the limit of the daily supply at Boonton is now supposed to be 50,000,000 gallons a day, the consumption of water had reached 57,000,000 gallons a day, due, of course, largely to the fact that thousands of householders are letting the water run from the faucets all night long in order to prevent it from freezing in the pipes.

### Mayor Sets Off Dynamite

Cumberland, Md.—The first shot of dynamite on the construction work of the new dam across Evitts Creek, two miles over the State line in Pennsylvania, was set off by Mayor George G. Young, and with simple but appropriate ceremony the work on Cumberland's new water supply project has been started. The ceremonies commenced with prayer by the Rev. William Cleveland Hicks, and soon afterward the contractors led the party to a place of safety and Mayor George G. Young closed the electric circuit which set off the dynamite. The hillside shook and 50 tons of stone and dirt were hurled into the basin. Thomas Footer, president of the Evitts Creek Water Company threw the first shovelful of earth at the dam to be constructed and the ceremonies were over.

### Woman Takes Town's Water

East Dundee, Ill.—Residents of the village have been suffering from a scarcity of water for several days. They have learned that the famine was caused by a woman, who turned off the valve connecting the town reservoir with the springs which feed it, so that she could obtain an ample supply of water for her needs. The increased flow of water in the woman's house removed the necessity of operating a hand pump.

### To Protect City's Water Supply Spring

Klamath Falls, Ore.—In an endeavor to furnish purer water to its consumers, the Klamath Falls, Light & Water Co. has made arrangements to keep the water from the spring free from contamination from surface water. Impure water was blamed for the typhoid fever and other sickness in this city last fall. Considerable concrete work will be necessary and operations will be commenced soon. The numerous tests of the city water were made to ascertain, if possible, the place from which the contaminated flow came. All of these tests proved that the water came up from the spring pure.



### To Walk Under the Hudson

New York, N. Y.—Arrangements have been made to have Mayor Gaynor lead a party of city officials under the Hudson River through the new Storm King tunnel, that has been bored there to carry the water from the Catskills to the east side of the river. According to present plans, the blast that will shatter the last heading and join the two shafts that have been bored from either side will be ready for firing on January 30.

Mayor Gaynor, the Board of Water Supply, Commissioner Thompson of the Department of Water Supply, Gas and Electricity and a number of engineers will be at the easterly shaft when the blast makes the tunnel continuous. Immediately thereafter he will lead the party through the tunnel under the Hudson and over to Storm King on the westerly shore. The tunnel has been blasted through solid rock from end to end and is for the most part perfectly dry even without the cement lining that is to go in later. The present diameter of the tunnel is eighteen feet, but this will be cut down by four feet by the lining.

### City to Make Test of Water

Lebanon, Pa.—The first official visit of Mayor Longenecker to the city supply dams was made last week in company with Superintendent E. H. Shroff, Select Councilman Frank McAdam and City Engineer Thos. R. Crowell, when the party visited the dams to secure samples of the water in order to have an analysis made. The last analysis was made in 1892. It was stated by the water officials that the present analysis is not being made for the purpose of discovering any bacteria, but solely to find out what chemicals and in what quantity such chemicals are found in Lebanon's water supply. Superintendent Shroff sent a large bottle of the water to the firm of Booth, Garret & Blair, of Philadelphia, to have the analysis made. The present analysis is being made upon the request of Dr. S. G. Dixon, the State Health Commissioner.

### Blow Ice Jam Up With Dynamite

Pueblo, Colo.—An ice jam which blocked the intake flume of the North Side water system for 36 hours last week was blown out after 12 charges of dynamite had been exploded. Several hundred tons of ice, piled high at the headgate of the intake flume, were shattered by the force of the explosions and after a couple of hours' work the water was again flowing freely from the river to the reservoirs, which had become almost emptied. The ice jam completely shut off the water. The North Side trustees requested that the main which connects the business sections of Pueblo on either side of the Arkansas River be opened and water furnished to the business and rooming house district from the South Side. Possibly 10,000,000 gallons were loaned the North Side from the South Side mains. If there were any North Side business men who knew of the matter they made no complaint and took their last bath in 1911 in South Side water. Water was pumped to the residence sections of the North Side from their own reservoirs and there was no shortage felt anywhere. The supply held out, although the water in all four reservoirs was getting low when the flume was finally reopened and the river water came through again with a rush.

### No Money for Engineers

Oklahoma City, Okla.—Expert Engineers J. W. Billingsley of New Orleans, Charles B. Burdick of Chicago, and Hiram Phillips of St. Louis, are in the city by invitation of the Board of City Commissioners and the committee of nine, which was appointed by the president of the Chamber of Commerce several weeks ago to confer and co-operate with the city officials in the matter of arriving at a solution of a permanent water supply for Oklahoma City. The three expert engineers were in close conference with Commissioner of Public Property W. H. Hampton, under whose department the water works come. The engineers agreed to come here and outline a practical plan for the city by which it will get a permanent supply of water. They have agreed to do the work for \$10,500, and the Board of City Commissioners will probably employ them. The city has no money with which to pay the fee, but Commissioner Hampton hopes to make a dicker by which it can be paid in installments out of the net earnings of the water works department, which, as a rule, run over \$5,000 per month.

### Ice Gorges Cause Low Water Pressure

St. Louis, Mo.—The formation of an ice gorge in the Illinois and Mississippi rivers and the breakdown of the Chain of Rocks pumping station caused the city serious trouble on account of the diminished water supply. For a time the supply from the clarifying and settling basins at the Chain of Rocks pumping station was exhausted and necessitated pumping the water directly from the river. The water department warned the public that all water used for drinking purposes should be boiled. The districts in the central and southern parts of St. Louis suffered most. A number of factories were compelled to close down and in downtown office buildings water by its pipe pressure would run no higher than the second story. Seven of the public schools were closed, as the pressure was insufficient to allow the operation of the heating plants.

### Inquiry Board Will Make Water Works Probe

Marinette, Wis.—Marinette is facing a water works problem, and it is believed the plan that has been adopted for a complete investigation, which may end in municipal ownership, is the first of its kind ever tried in the State. The plan, which was proposed by Mayor Joseph Fisher, is for an investigation of plants in other Wisconsin cities of more than 10,000 in population by a water works' inquiry board, consisting of the mayor, twelve aldermen and twenty-five representative citizens of all shades of belief and political convictions. One sub-committee is empowered to investigate in cities where municipal ownership is now a fact, and Milwaukee will be one of the first cities to be visited. Madison, Sheboygan, Appleton and Fond du Lac will also be visited. The Wisconsin State commission recently rendered a decision in the Marinette water works case. It dismissed the complaint of the city and made its decision as to rates and future service merely a recommendation, advising among other things the installation of meters in the homes of private consumers. It placed the value of the plant at \$350,000, and said the company was entitled to earn 7 per cent. on that investment. The valuation is generally regarded as much too high. In spite of the fact that the water company asserts, and the commission sustains the assertion, that the company now is serving water at a loss, the water company does not want to sell the plant. The utility is owned by a big Pittsburg corporation, which has a plant at Racine, and many others in the Middle West.

## STREET LIGHTING AND POWER

### Binghamton Erecting Boulevard Light Shafts

Binghamton, N. Y.—Six standards a day will be the average for the workmen engaged in setting boulevard lighting shafts on Court street from now on. The material for a large number of shafts has arrived and the balance is on the road, so there will be no further delay from this source. It is planned to erect a complete pole at the corner of Wall and Court streets to ascertain the best method of wiring and use this as a pattern for the others. The two telephone companies are removing their wires from Court street as rapidly as possible and the Binghamton Light, Heat and Power Company is also changing its wires. The telephone companies are running their wires in the rear of the buildings which they supply with service. There are thirty-eight boulevard lighting posts to be placed and the work will be finished in about one week.

### Install Light Plant at Taylor

Taylor, Tex.—A. G. Johnson, of the Gas Power Producing Co., of Lima, has arrived with his assistants to install the gas-producing machine and other machinery for the Taylor Light and Heat Co., composed of Eastern and local capitalists, who recently bought the interests of R. E. Schurtz & Son, to whom the city granted a franchise over a year ago for the installation of a gas plant in Taylor. Schurtz & Son built a brick power-house soon after the franchise was granted them, but suspended operations before installing the machinery, and nothing further has been done until the new company was organized. Manager Johnson is laying the gas mains along the principal streets and building foundations for the machinery that is expected to arrive soon.

### To Place Shut-offs on All Gas Pipes

Springfield, Ill.—Springfield will be one of the first cities in the State to enforce the provisions of a law passed by the general assembly at the last special session, providing that "shut-offs" be placed on all gas pipes and buildings and accessible in case of fire. Fire Chief Bolte of the Springfield department has conferred with Commissioner Davidson regarding the provisions of the law. The new measure, which found strong support in the Illinois Legislature as a means of lessening the danger to firemen entering buildings to fight fires was passed by unanimous vote. Fire Chief Bolte believes the law will prove a great aid to the fire departments of the different cities of the State, and in discussing the law he stated that one disastrous fire in Springfield within the last year would have been extinguished with small loss had the building been equipped with a gas "stop-cock" within reach of the firemen. "Escaping gas is one of our worst foes," Chief Bolte said. "It works two ways, as the firemen are unable to enter the building and thus gain an advantageous point from which to fight the blaze, and it also is the cause of explosions which give life to the fire and cause the walls to fall. The gas escapes at the connection of the pipe and meter. The connection is made by a lead gooseneck and as soon as the lead becomes hot it melts and the gas escapes."

### Will Light Fifty Towns

Gladwin, Mich.—The Consolidated Lighting & Power Co. of Detroit has bought the interest of Schultz Prindle in the local electric lighting system for \$18,000. The company at present lights Clare and Mt. Pleasant, having a dam in each town, and expects to light about fifty other towns in the near future. The company is financed by J. L. Hudson, C. S. Abbott and Mr. Tannehill, of Detroit. They will build an electric line from here to Clare immediately, and expect to finish in three weeks. They will give a 24-hour service at a 10-cent rate. The company will also run the local flour mills, two elevators and a printing office. The power will come from Clare at present, but from Mt. Pleasant about June, when the company will have completed its \$135,000 dam on the Chippewa River.

### New Power Plant Completed

Bristol, Va.—The first hydro-electric power plant established in Tennessee has been put in operation. This plant, built by the Watauga Power Company, is located in the "Horseshoe" of the Watauga River, twenty-five miles southeast of Bristol, and the work of establishing it has continued over a period of two years, and has entailed a cost of \$300,000. The capitalists backing this plant are residents of Elizabethton, Tenn. The officers of the company are: Lee F. Miller, president; W. E. Hunter, vice-president, and J. H. Grayson, secretary and treasurer. The work has been accomplished under the direction of Engineer Francis R. Weller, of Washington, D. C., assisted by R. L. Weide, of the same city. The concrete dam rests on a granite foundation, and is anchored to granite walls on either side of the river. The dam is 55 feet high and 53 feet in thickness at the base, and is 350 feet in length. It forms a lake one and a half miles in length. Its capacity is 3,000 horsepower. The machinery, with the exception of the turbine wheels, is of the Westinghouse make, the plant containing three units, two of which have already been installed. The machinery has been tested and found to be in good condition. Aluminum transmitting lines have been constructed, and the company is now ready to deliver current at Elizabethton and in Bristol. In addition to this plant the company has two other available water powers, and will be able to supply 7,500 horsepower whenever there is a demand for that amount. The completion of this dam is looked upon as the beginning of a new era in power development for Tennessee, which is said to have more available waterpower than most of the Southern States, because of the fact that its streams rise in mountains that place their source 6,000 feet above the level of the Mississippi River. Another large power is now being developed in the Tennessee River near Chattanooga. Significant to this situation the Government, through the Bureau of Forestry, is now inspecting the land that embraces the headwaters of these rivers with a view to making them a part of the National timber reserve under the Weeks bill. The protection of the watershed thus will be of great value to the waterpower of Tennessee.

### City Saves When Lights Burn Out

Walla Walla, Wash.—A source of saving to the city little known to the general public is the fine or refund charged the electric light company for every light found out at night during the year, which during 1911 netted the city in the neighborhood of \$150, by a rough estimate. This amount is credited to the city by the Pacific Power & Light Co. in collecting its regular light bill. The system by which this sum is obtained is that whenever a patrolman finds a light off when it should be burning he notifies police headquarters, where a small record book is kept. About 400 lights were reported out during the past year, and for each one of these the city receives 33½ cents, so that the police department more than pays for the small amount of work necessary to keep the record.

### Company Announces plan for High Power Electric System

Johnstown, Pa.—Officials of the Citizens' Light, Heat & Power Co. have given confirmation of the published statements that the purchase of power plants in Indiana County are but the first step in the construction and operation of a high-tension power system reaching out into neighboring counties. It will be one of the links in the chain of power plants by which current is to be supplied for commercial and other purposes at various points. The official statement of the company follows: There has been much speculation in the past few months as to the real intent back of the efforts of this company to get information concerning possible electric consumers in the territory adjacent to Johnstown. A definite plan has now been formulated for constructing a system of high-tension power lines throughout the territory adjacent to Johnstown, and this plan will be put into effect as promptly as the necessary details can be perfected and the business justifies. One of the first steps in the development of the proposed plan is the purchase of the lighting plants at Blairsville and Indiana, and negotiations for others are under way. The development of the coal and other industries in this territory has been seriously retarded in the past by lack of cheap power, and it is the intent of the Johnstown company to aid the industrial development of the territory by supplying the need.

## FIRE AND POLICE

### Firemen Frozen to Tower

Louisville, Ky.—While walking over the roof of a building preparatory to calling his men from the scene of a recent fire, Captain Stephen Obst slipped on the ice and fell four floors through an opening in the roof. He is said to be fatally hurt. Captain George Fitzpatrick and Henry Martin were chopped from their positions on a water tower after being frozen to that apparatus for more than an hour. Their condition is serious.

### Water Freezes in Fire Hose

Chicago.—Chicago shivered last week before the iciest day that has visited the city in two years. Zero weather for the first time this winter came in before a driving northwest wind that continued to send the mercury down until six degrees below zero was reached. Scores of persons were driven into the streets, two buildings destroyed, and three families were made homeless by a fire on the South Side. All of the water plugs in the immediate vicinity of the blaze were frozen and water was obtained from plugs three blocks away. Water was frozen in the hose, bursting it.

### Rockford Has Another Auto Fire Truck

Rockford, Ill.—The long-talked-of motor fire engine has arrived in the city. If the claims of John Ahrens, of the Ahrens-Fox Co., of Cincinnati, the builders, are realized, Rockford's motor-propelled engine is the largest in the country. The new machine has pumped 798 gallons of water per minute, and Mr. Ahrens, who accompanied the machine to Rockford, thinks that it is capable of another fifty or more gallons. Rockford's new apparatus is the first one built by the company. The engine which runs the machine to a fire propels the pumps. The apparatus has a large body capable of carrying 1,500 feet of hose. The machine is a self-starter and is equipped with electric headlights and all modern improvements. The machine is capable of doing 38 miles per hour and weighs, when empty, six and a half tons, and sells for \$10,000.



### New Auto Fire Engines

Savannah, Ga.—The reorganization of Savannah's fire department is going forward with rapid strides and soon there will not be a horse in the department. Two additional automobile fire engines have been received from the American-La France Fire Engine Company, of Elmira, N. Y. They will be given a thorough test by Chief Thomas Ballantyne before being placed in commission. With the arrival of these machines, eight of the thirteen purchased have been delivered. Three of these are pumping engines. The others are chemical engines and combinations.

### New Auto Engines Are Bought by Savannah

Savannah, Ga.—Savannah is attracting widespread attention, not only in Georgia, but other States, by the reorganization of its fire department with automobile engines in the place of the horse-drawn machines, and has now become a demonstration center for other cities contemplating adopting the automobiles for their fire departments. Recently there have been committees from several cities in Savannah inspecting the new machines. A committee from the Board of Aldermen of Decatur, Ala., completed such an inspection and left for their homes, enthusiastic over the possibilities of the automobiles as fire fighters. With the committee was C. B. Payne, of Atlanta, a representative of the American-La France Fire Engine Co., of Elmira, N. Y., the concern which furnished the machines for the local department.

### Fire Marshal Suggests Fireproof Windows

Dallas, Tex.—City Fire Marshal Homer B. Fisher makes the following statement: "It is to be desired that all of the big new buildings of fireproof construction shall put in wire-glass windows and steel casings and window frames. Such a building might, at some time, as already has occurred in other big cities, be the means of stopping a conflagration. It might be a little drastic to require that all over the city now, but it is a move in the right direction to bring it about as often as possible. It is for protection within the building from fire without, and it will prevent the spreading of a fire from the building or from room to room within it."

## GOVERNMENT AND FINANCE

### Evansville Begins Year With Big Cash Balance

Evansville, Ind.—That \$39,503.14 in available cash is now in the hands of the city is shown in a report compiled by Deputy Controller George Koch. While \$100,261.57 is really in the city's hands, the remainder of the money is either in the form of sums kept up by public service corporations as a guarantee of speedy repair work or is owned by the city. The report follows:

Cash in hand .....	\$100,261.57
Public improvements.....	\$5,384.55
Street sprinkling .....	18.43
Arnold & Co. (old improvement).....	13.35
Peddlers' license signs .....	30.00
Public Service Co.....	500.00
E. & P. Traction Co.....	100.00
Cumberland Tel. & Tel. Co.....	500.00
Special park purposes .....	11,786.28
Street repairs .....	12,982.31
Orders—Year 59, 60, 61, 62, 63, 64.....	23,647.82
Purchase real estate .....	29.40
Expense refunding city bonds .....	885.35
Repair on construction park buildings.....	4,775.00
Available cash .....	39,503.14
	\$100,261.57

### Commission Rule Is Fought in Baker

Baker, Ore.—Baker, the first city in Oregon to adopt the commission form of government as a means of expediting its affairs, is threatened with a municipal eruption. A petition has been started for the purpose of calling a special election, with a view of abolishing the present commission form and returning to the old system of a mayor and council. The sponsors of the movement have kept themselves in the background, and those who have the circulation of the petition in charge refuse to divulge their identity, saying that they will make themselves known when the proper time comes. The claim set forth by the petitioners is that the present system has proved too expensive and that under the charter they propose adopting the same results will be obtained with a great reduction in expenses. That the city has been well governed since the adoption of the present charter they do not deny, but claim it could have been done as well with a large reduction.

### Finds Flaw in Crosser Law

Columbus, O.—City Solicitor Stuart R. Bolin of this city has begun the preparation of an action to test the validity of the Crosser initiative and referendum act for municipalities, passed by the last Legislature. He charges that the sixty-day clause suspending the operation of any measure passed by the City Council for that length of time would leave the city penniless. The plan to be followed in testing the law is to prepare the semi-annual appropriation ordinance for Council, urging its passage immediately, so that the money may be available within ten days after its publication in accordance with the provision of the old law.

### Council Will Form New Departments

Scranton, Pa.—Three new departments will be created by the city council within the next few months. The departments which are authorized by acts of assembly passed and approved by the governor are: Department of Supplies, of which the city treasurer may be the directing head; Department of Art, composed of nine members, including the mayor, director of public works, one painter, one sculptor, three architects and two others; Department of City Planning, to consist of nine members, appointed by the mayor. Pittsburgh, the only other city in the second class with Scranton, has already such departments. The director of the department of supplies is to have authority in the purchase of supplies, from a dozen lead pencils to one hundred bushels of oats, and all of the other departments are to obtain supplies through that department. The provision that the city treasurer may act as head of the department was placed in the bill at the suggestion of Mayor John Von Bergen, as the expense of the salary of the head of a department of supplies, fixed by the act at from \$2,500 to \$10,000 a year, was unnecessary here, as the supplies now purchased by the other departments do not warrant such an expense. The mandatory provision in the act makes it necessary, city officials say, that City Treasurer Thomas R. Brooks be made the head of the department in name. The actual work of ordering supplies will remain with the heads of the various departments, if present plans go through. The department of art and the department of city planning are commissions to which appointments will be made by the mayor. The city planning commission has extensive powers and may pass on street openings and changes in the streets and public buildings. The art commission will pass on statues, paintings, the plans of public buildings and other artistic matters.

### Will Install Unit Cost System

Schenectady, N. Y.—Mayor Lunn, who is now in charge of the municipal affairs of the city, in a recent interview said it was the idea of the administration to gather information on prices of materials and supplies and the quantities used by the several departments in order next year to purchase such materials and supplies by contract. "We stand pledged to certain things and we are going to fulfill our pledges," Mayor Lunn remarked. "We are pledged to establish a garbage disposal plant. That must be met at once." The Commissioner of Public Works added that the present administration intended to immediately start in to build up a complete system of municipal data. "My observation leads to the opinion that an up-to-date system in the public works department is needed," Mr. Mullen informed the reporter. And then he discussed with the newspaperman some of the innovations he will institute. "What is the assessed valuation of Schenectady?" Mr. Mullen asked. He was informed \$50,000,000. "I don't think any private corporation of the size of Schenectady would think for an instant that it could afford to do business with such an equipment and system as is found in the public works department," the commissioner remarked. "I expect to appoint an expert accountant as my secretary," Mr. Mullen said. "One of his first duties will be to systematize the work of the office of the commissioner of public works and to install an up-to-date business system for the keeping track of stock on hand, purchases and disbursements. We also wish to install a unit cost system, and a system of purchases that will insure the cheapest prices on all material and supplies. It will take about a year to perfect such a system." One of the reforms the new commissioner of public works will introduce will be to have indexed records compiled of all dealers in materials and supplies needed by the municipality.



### Mayor Would Establish Public Utilities Bureau

Pittsburgh, Pa.—Among the things Mayor William A. Magee is especially anxious for Council to provide by the authorization of a proper appropriation is a bureau of public utilities. The Mayor explained the results that could be derived from the creation of a bureau to oversee the conduct and management of every public service activity in the city. The need for a bureau to confine its activities exclusively to keeping check on the public service companies was made plain. First of all, the Mayor said, would come a systematic record of the operations of traction cars, an accurate compilation of details of transportation as a guide in studying possible complaints or suggestions for service betterment, records of contracts with lighting, power, gas and similar companies to check up the efficiency of the service, and a gradual expansion of such work to eventually include even the operation of taxicabs in the city. Thus it would be possible to have data instantly available in the event of controversies or conferences with any such companies. The Mayor thought that a bureau of this sort should be placed in charge of a competent electrical engineer, who would thoroughly understand the technical features, who would be supplied with an office and clerk or stenographer. This would cost the city not more than \$6,000 or \$7,000 a year, he thought. Another economical innovation outlined by the Mayor was the establishment of a Bureau of Repairs to centralize all the mechanical work of the city's various departments and to take charge of all repairs.

### Proposes a Bigger Boston

Boston, Mass.—Should the bill of Representative Daniel J. Kiley of Boston succeed in its purpose, Boston will become one of the six largest communities in the world. His bill provides outright for the merging of all cities and towns coming within a ten-mile radius of the State House into a new city with an estimated population of 1,500,000. The bill would add to the present city the cities of Cambridge, Chelsea, Everett, Lynn, Malden, Medford, Melrose, Newton, Quincy, Somerville, Waltham and Woburn, and the towns of Arlington, Belmont, Braintree, Brookline, Canton, Dedham, Hingham, Hull, Lexington, Milton, Nahant, Needham, Revere, Saugus, Stoneham, Wakefield, Wellesley, Weymouth, Winchester and Winthrop. Under this plan the area of Boston would increase from 42 square miles to 381, and the population would jump from 670,585 to 1,500,000. The bill provides that all the cities and towns shall become part of a new City of Boston, if at the election in November, 1912, five-eighths of the total vote cast in all such cities and towns on the question of such consolidation shall be in the affirmative. If the consolidation fails, the question is not to be submitted to the voters again for three years.

### Mayor Alexander Urges Commission Control for City

Los Angeles, Cal.—A commission form of government for Los Angeles as soon as possible is one of the important recommendations contained in the annual message of Mayor Alexander, which has been sent to the Council. "The city is badly in need of a new charter," the Mayor says in his message. "I believe the commission form to be the best." The National Municipal League is to hold its convention in Los Angeles in June, and the Mayor points out that, connected with this organization, are men who have made a special study of municipal government and especially the commission form. The mayor asks that the Council set aside a fund of \$5,000 to pay the expense of the experts of this league and to bring them to Los Angeles to frame a charter for this city. Eliminate unnecessary expense in the duplication of city and county offices, he advises. He suggests that one assessor can do the work for both city and county and that a number of other offices can be consolidated in the same way. Such consolidation would require an amendment to the State law, and the Mayor recommends this be made at the next session of the legislature. Stop turning the city's garbage into pork, he said, and instead make provision for a modern, sanitary and income-producing plant to dispose of the waste. He urged the new Council to give this subject immediate attention. An industrial commission to make an investigation into the conditions of Los Angeles as compared with other large cities is suggested. This investigation, he says, should cover the cost of labor, material, transportation and other matters relating to commerce and manufactures.

## STREET CLEANING AND REFUSE DISPOSAL

### Annual Report of Street Cleaning Department

Augusta, Ga.—The report of Harry F. Beaver, superintendent of the street cleaning, street sprinkling and scavenger departments of the city, has been completed and turned over to Commissioner of Public Works Nisbet Wingfield. The report carries with it a number of important recommendations. The street cleaning department was operated for \$3,823.13 less than the amount appropriated, but this was on account of the paved streets being torn up part of the year. Mr. Beaver's report on this item says: "The above shows a credit of considerable amount in this department, this being caused by my having to cut off the push-cart men on paved streets during the past six months, also my inability to sweep the streets caused by the laying of underground wires on paved streets. The new pick-up machine purchased gives perfect satisfaction, being used each night before the sweepings got so heavy with dirt from trenches that were dug on paved streets, at which time I found it much more economical to have the windrow piled by hand than to use pick-up." The following is said regarding the street sprinkling department: "The present equipment can well take care of and properly clean the paved streets we now have. Considerable repairs will have to be made to several of the machines, and new parts ordered and put in. This department has collected and hauled 3,786 loads of manure and 2,200 loads of sand and leaves from traps. The present method of sweeping the streets after being swept could be greatly improved if the merchants and residents would have their sidewalk properly swept. New cans for our street corners will have to be purchased during the year. The placing of these cans on the corners, I find, renders valuable assistance to this department in keeping paper off the streets."

### Levy Sprinkling and Sweeping Rates

Marysville, Cal.—The City Council levied street sprinkling and street sweeping rates for the season of 1911-12 at the same figures that prevailed for 1910-11, namely, 10 cents per front foot for sprinkling streets, 1 cent per front foot for sprinkling alleys, and 40 cents per front foot for sweeping.

### Walks Must Be Cleaned by 10 in the Morning

Syracuse, N. Y.—Snow will not be permitted to remain on sidewalks in the downtown section of the city after 10 o'clock in the forenoon. Commissioner of Public Works Frank M. Westcott has announced that the city regulation in this respect will be strictly enforced. Men from his department, he said, will clean the walks and the cost will be charged to the merchants or property owners. The time of the men employed in removing snow in front of each street number will be kept, and bills will be sent to the persons responsible for keeping the snow off the walks.

### Snow Removal Does Not Cost City Additional Expense

Pueblo, Colo.—Two thousand, one hundred and twenty-one loads of snow have been removed from the streets of Pueblo so far this winter. The entire amount was taken away by the street department under Commissioner C. A. Lannon and Superintendent W. C. McWilliams without a cent of extra expense to the city. The teams and men were the regular employees of the street department, taken from the sprinklers, graders and cleaners that ordinarily work in good weather. Considerable interest has been aroused in the campaign against snow blockades in the business section. Not only has the snow been the deepest for many years in Pueblo, but it is also the first time in the history of the city that an organized effort has been made to remove it from the paved street district, as fast as it fell. It was the general impression that the campaign had cost the city a small fortune. "We have been put to little or no extra expense, but it has cost us no end of trouble," said Commissioner Lannon, "for you see in the past we have been paying \$100 per month for sprinkler teams and drivers and then allowing them to remain idle when there was no necessity for sprinkling. This time we just let them work their regular time every day. We handled the street cleaning teams and workers the same way, and the result has been that we have had 12 teams and wagons and 28 men concentrated in the business district battling with the snow both day and night."

### New Orders for Clean Streets

Jersey City, N. J.—A consultation was recently held by Street and Water Commissioner Frank Hogue with Street Cleaning Commissioner Quinn and Superintendent McGrath on the question of methods of street cleaning. As a result there will be sent to every householder in Jersey City a notice giving directions as to how to place refuse in garbage cans. In brief, these directions will be that loose papers must not be placed in the cans. They must be tied in bundles. Sawdust must be placed in boxes in such a way that it will not spread when the boxes are thrown into the collecting wagons. Straw must be tied up in bundles. Garbage cans must not be piled so high that their contents will fall over on the sidewalks or into the street. Within a reasonable time after these notices are received inspectors will make the rounds with the men who collect garbage. Whenever they find that these rules have been violated the owner of the garbage can will be immediately informed that he or she will have to appear in the criminal courts the next morning. A warrant for the arrest of these careless persons will be sworn out by the inspector. The judges of the two criminal courts have been consulted and have declared their intention to assist the police and the street cleaning men in this campaign for clean streets.

## RAPID TRANSIT

### Project Another Road to Randall

Cleveland, O.—A suburban railway line connecting Cleveland with Warrensville, Randall, and eventually Chagrin Falls, is projected by the Cleveland, Randall & Eastern Railway & Power Co., recently formed.

The company, according to men in it, plan to build a line on Miles avenue from East 131st street east, with the present terminus near Randall, but with extensions to follow. The projected road is to connect with the Cleveland Railway Co.'s tracks at East 131st street, and to make Randall in about a three-mile run. From there to Chagrin Falls is a distance of about ten miles.

From Cleveland to Randall the road, it is stated, will take a course somewhat similar to that of the North Randall Railway Co., the road to be constructed by Cleveland horsemen, to furnish transportation to and from the Randall race-track.

### Cars Must Have Fenders

Harrisburg, Pa.—The State Railroad Commission has issued a ruling that it is the duty of every transportation company to make reasonable provisions against accidents, and that if the travel and population of territory traversed by a traction company require the use of fenders on cars they should be supplied. This action was taken in the case of the complaint that cars operated by the Cumberland Railway Co. through Mt. Holly Springs were not equipped with fenders.

### Hairpins Assist in Running Trolley Cars.

Athol, Mass.—On a recent run of the Highlands car several Athol women sacrificed their hairpins, at the peril of losing their rats, so that the car might make the run up School street hill. The car left on time, but developed fuse trouble. The motorman found that short pieces of metal were necessary to make fuse connections. The car had no supply. The motorman opened the front door and asked for a few hairpins. With smiles several women pulled out hairpins. By plugging in one hairpin after another the motorman managed to keep the current on and the car running.

### Council Passes "Safe and Sane" Auto Ordinance

Des Moines, Ia.—Des Moines people will see "safe and sane" automobile driving as the result of the passage by the City Council of Superintendent MacVicar's new automobile ordinance which conforms with the Kulp automobile law passed by the legislature last winter. The speed limit in the downtown business districts in East and West Des Moines will be ten miles an hour. No greater rate of speed than twenty miles an hour will be allowed in the residence districts. Councilman Roe, of the street department, will place signs on all main roads leading to the city showing the rate of speed.

## MISCELLANEOUS

### Torreón Improvements

Torreón, Mexico.—Torreón's new presidente municipal, Senor Eugenio Aguirre Benavides, has been installed into office with much pomp and ceremony. The federal troops paraded the streets in the forenoon headed by military bands. After the oath of office was taken by the newly-elected officers they were serenaded. A number of new policemen were added to the force and all are supplied with new uniforms of blue. The streets are being cleaned and orders issued to have all obstructions and rubbish removed. It is reported city taxes are to be increased, the new officials claiming that in order to carry out their plans of bettering the police force and making needed improvements it will be necessary to increase the revenue.

### Low-Hanging Signs Will Be Removed

Fort Wayne, Ind.—Physicians, attorneys, real estate men and merchants on Berry and Court streets who have their advertising signboards flung across the sidewalk at elevations ranging from eight to twelve feet will be ordered by the city building inspector to tear them down or reconstruct them so as to come within the State law, which provides that they may project not more than three feet from the building and shall be suspended from not lower than the second story. The installation of the ornamental lighting posts on these thoroughfares is responsible for the agitation against the low-hung signs, and they are made more assertive by reason of the light thrown upon them. The obvious incongruity has been too much for a couple of the professional men, who of their own volition ordered their signs taken down. Another condition relative to Fort Wayne signs that has been called to the attention of the civic improvement leaders is the permitting of burned-out lamps to remain in electric signs. Numerous big, valuable signs in the downtown districts are being operated with from half a dozen to fifteen dead lamps in them, detracting materially from the appearance of the signs.

### Kalamazoo Made Many Improvements Last Year

Kalamazoo, Mich.—In the past year two new 6-inch wells have been driven at the waterworks, increasing the daily supply in the city by another half million gallons of as pure water as any city in the country has. To make this supply available at all times an air compressor has been installed at the waterworks which is capable of delivering 5,000,000 gallons of water daily into the main well at the waterworks to distribute this to the parts of the city which heretofore have not had water. Nine miles of new mains have been laid during the past year, which is as much as has been laid in the last four years previous. At Henderson Park and West Main street a new "Booster" pump has been installed which will automatically keep the West Main street stand-pipe filled without any additional work whatever on the pumps at the main pumping station. This will insure an abundant supply of water to the whole west end of the city. Since the beginning of the year every water connection in the city has been placed on a meter, including fire mains and sprinkler systems. In the sewer department there has been great activity. Sanitary sewers have been built upon all streets where new water mains were laid where they were not already. This gives thousands of citizens advantages of sewer connections which they had not formerly had. In addition to this two other districts of the city which have been badly in need of sewers have been cared for. The sanitary sewer zone in the vicinity of the waterworks, which because of the fact that it was lower than the rest of the city has never had any sewer, has been finally provided for. The sewer system in the zone empties into a well from which it is pumped by an automatic electrically driven sewer pump to the high level of the trunk sewers, running to the river. This insures perfect sanitary conditions in a portion of the city which was badly in need and likewise insures the water system against contamination. The Fulford street sewer has been finally constructed and several thousands of people on the south side of the city have been given the advantages of a combination storm and sanitary sewer.

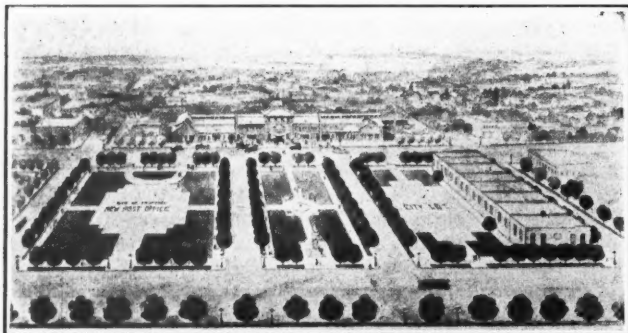


### Montclair Will Wage War on Mosquitoes

Montclair, N. J.—For the purpose of making an experiment along the lines of mosquito extermination in the town, the Montclair Board of Health, in making out the budget of estimated expenses for the coming year, decided to include an item of \$2,000. The Board proposes to employ from six to eight inspectors during the spring and summer months to cover the entire town each week, looking for pools of water in which the pests might breed. Even private premises will be searched, the idea being to determine once and for all whether mosquitoes can be abolished by ridding the town of the breeding spots.

### Artistic City Center at Augusta

Augusta, Ga.—The picture following gives a view of Barrett Plaza, which is now under construction and when completed will give to this southern city an artistic and beautiful entrance. The idea of R. Roy Goodwin, managing director of the Chamber of Commerce, has been carried out in its construction. Around the entire block ornamental shade



BARRETT PLAZA AT AUGUSTA.

trees are being planted, while cluster arc lights on ornamental poles will be placed at the intersection of the streets and avenues. The center of the plaza will be occupied by an ornamental fountain, while the front facing Telfair street will be the site of a life-size bronze statue of the late Senator Patrick Walsh. On the left the government will erect a \$250,000 post office, while the city lot, on the right, will be occupied by a \$70,000 Carnegie library. The city is under contract with the government to maintain the plaza, and the plans contemplate lawns and beds of ornamental plants in season.

### Curfew for Boy Pool Players

La Crosse, Wis.—The third reform movement has gone into effect. No boy under 21 years was allowed in pool rooms after 6 o'clock. The adoption of the new measure was found necessary because the pool rooms had been made the rendezvous for high school students and gambling had been indulged in.

### Street and Sidewalk Venders Abolished

Houston, Tex.—Merchants of the city who are now using the streets and avenues as a basis of operations instead of stores will have to go out of business January 10 or move into stores. Instructions have been received by Chief of Police Voss from Mayor Rice to enforce the sidewalk ordinance rigidly after the date named. The ordinance, which is sweeping and general in its terms, has been on the books for several years, but has never been enforced. Its enforcement will have the effect of putting out of business all the peanut, popcorn, candy, nut and fruit venders who have resorted to the use of push wagons, push carts, or sidewalk stands to display their wares. Some of these venders have been doing business in Houston for years, but unless they should carry their complaint to the courts and win, they will be compelled to retire. Here is the ordinance that is to be enforced:

"It shall be unlawful for any person or persons to store or expose for sale, or sell on any sidewalk or street in the city of Houston, any fruits, nuts, candies, cigars, tobacco, soda water, or any other goods, wares and merchandise, or to occupy any sidewalk or street of said city of Houston with any bootblack stand, booth or other frame structure for carrying on any business or occupation, or to allow any boxes or merchandise to remain on the sidewalks." Merchants who have stalls at the city market and who pay rent for the same appeared before the City Council more than a month ago and asked that more protection be granted them.

### Favor Plan for Municipal Saloon

Coeur d'Alene, Ia.—Ministers of every denomination have assured Mayor Wood and the Council of Coeur d'Alene of their support in a plan to establish a municipal saloon in the city, instead of issuing individual licenses. Many residents of the city also are in favor of giving the innovation a full trial. Alderman Barrett has issued a statement to the people of Coeur d'Alene, saying in part: "Some of our citizens object to the municipal saloon on the ground that it 'would put the saloon in politics.' In my opinion exactly the reverse is true, as it would be readily conceded by those who have by experience and observation noted the political activity of the liquor interests on all matters which they consider even remotely affect their interests. Nominally the public officials are supposed to regulate the liquor traffic, but in reality are often regulated by it. Other objections are that the city would lose money because of grafting politicians and dishonest employes. There is no doubt that some loss would occur through these agencies, even as it occurs in private business, but a systematic check balance system could be instituted and surety bonds required of all who handle money. The working out of the system is purely a matter of detail. There is nothing in the Constitution or statutes of Idaho that forbids a city engaging in a mercantile business; yet there is no law specifically authorizing a city so to engage, so in all probability should the city of Coeur d'Alene go ahead with the proposed municipal saloon, whether it would be permitted to proceed is a matter for the courts of the State to decide."

### New Ordinance Will Force Trimming of Shade Trees

Binghamton, N. Y.—At the next meeting of the Common Council a new city law will be promulgated which will require the trimming of all shade trees a distance of 14 feet from the sidewalk and entail a penalty against property owners who fail to obey the mandate. There is in existence at the present time an ordinance requiring the trimming of trees to a height of 12 feet, but this has not been enforced for several years. The result is that in all parts of the city branches of shade trees grow low, preventing an equal distribution of light. City officials realize that unless some action is taken the new system of lighting will not be as effective as desired. After the new ordinance is passed by the Common Council it must be advertised two weeks before it can become effective. It is proposed to have notification blanks printed, to be filled out by inspectors, who will file them with the occupant of the residence where the objectionable trees are located. The notification will direct that within a given time the trees be trimmed to a height of 14 feet. This affords property owners who desire to trim their own trees an opportunity to do so. At the expiration of the allotted period if the improvement has not been made an employee of the city will proceed to trim the trees and the cost will be charged against the abutting property in the same manner as the cost of cleaning sidewalks. Thus all trees throughout the city will be uniformly trimmed and the appearance of the streets will be greatly improved. There will also be much improvement in the street lighting on the outskirts. The work of tree trimming will begin early in March.

### Engineer Makes Report for Year

Richmond, Ind.—The annual report of City Engineer Fred Charles for 1911 shows public improvements constructed during the year entailing a total cost of \$120,574.71, the largest amount of work ever let out on contract in the history of Richmond. Of this amount \$95,165.58 was paid by property owners and \$25,409.13 by the city. During the year ten miles of cement sidewalks were constructed; 5.81 miles of cement curb and gutters; .585 mile of cement alleys, and .695 mile of sewers. A total of .75 miles of brick streets was constructed. They entailed a total cost of \$30,124.72. A total of 1.905 miles of macadam streets were made, and .493 miles of graded, graveled and bouldered roadway. Work was done on 2.870 miles of unimproved streets. For the construction of crosswalks \$643.18 was spent by the city. The construction of sewers entailed a cost of \$9,519.05; macadamized streets with cement curb, gutters and sidewalks, \$28,509.62; streets, graded and graveled with cement curb, gutters and sidewalks, \$7,878.55; cement sidewalks, \$18,244.75, and cement alley roadway, \$6,620.32.



**Report of City Engineer**

Rochester, N. Y.—The annual report of City Engineer Edwin A. Fisher has been submitted to Mayor Edgerton. The report shows that during 1911 the total number of ordinances for public improvements, such as pavements, sewers, sidewalks, etc., was 185, the total cost of which is about \$1,500,000, subdivided as follows: Pavements, approximately 22 miles, approximate cost, \$1,100,000; sewers, exclusive of sewers included with pavements, approximately seven miles, approximate cost, \$130,000; sidewalks, exclusive of walks included with pavements, approximately nine miles, approximate cost, \$25,000; miscellaneous, including Central avenue bridge and Westfall road bridge in Genesee Valley Park, grading, lateral sewers, etc., approximate cost, \$210,000; total, \$1,465,000. Of this amount the New York State railways will pay about \$155,000.

**City Commission Will Not Molest Street Peddlers**

Fort Worth, Tex.—Street peddlers are to be allowed to sell their wares on Fort Worth's streets. This was the decision at a recent meeting of the City Commission. A petition was filed several months ago demanding that the peddlers who sell their stock on the street have their licenses taken away from them. The petitioners claimed that the habits and customs of the peddlers who engage in street trade are unsanitary and disease breeding and that the edibles which they offer for sale are most unpalatable. Other charges were to the effect that most of the foodstuffs are prepared from cheap material and kept in old buildings where many eat and sleep in the same room, and besides this, the wagons in which the foodstuffs are displayed never are covered and accordingly accumulate dust and dirt. Sanitary officers reported to the commission that they have found the food handled by the street peddlers to be in very sanitary condition. The report went on to say that the officers find the places of business of these men are in sanitary condition, and that no complaint had been heard by them from the public. Corporation Counsel Slay reported to the commission that according to his opinion any valid ordinance prohibiting push carts from the streets would have to include all persons engaged in the same line of business using windows and doors, projecting over the streets and from other obstructions upon the streets.

**Projecting Signs Must Come Down**

Chattanooga, Tenn.—Chattanooga merchants are indignant over the crusade being waged against signs, illegally erected, and they insist that police authorities show some law for the orders that these be torn down. Recently members of the police department have ordered more than 150 signs to be removed from in front of business houses and more are to follow. This is not fully understood by those affected, and a large number of complaints are made each day. Because a certain kind of sign is permitted, while others are not, it is charged that discrimination is being made, but if the merchants will look up the law under which the work is being done they will find that Commissioner Betterton and Chief Hill are acting within their authority. Under a law passed in 1894 no sign can be erected which projects over the sidewalk, except a permit be obtained from the chief of police of this city. It is under this act that the signs are being removed. No one denies that the act was not enforced for years, and that a large number of signs were erected without interference upon the part of the police, but there was another administration in charge, and those now in office do not answer for what has been done before. Several months ago the municipal commission passed an ordinance requiring that all signs erected which projected over the sidewalk should be illuminated. It is not specified that they have electric lights. In many cases gas is used, and in some gasoline and other means of illumination. This measure is responsible for the war now being waged. There are to be no signs permitted on the streets that do not have at least one light for every 1½ square feet of surface and they must be erected under the inspection of Building and Electrical Inspector Dugger or of Secretary Weigel, of the Department of Fire and Police. Signs must be put up with chains and braces so that they will stand for some time and not be liable to fall on pedestrians who pass beneath them. They must also be illuminated and cannot be erected without a permit from Chief Hill.

**Strict Law for Solicitors**

Mitchell, S. D.—The City Council of Watertown has adopted an ordinance for the protection of business men and citizens from the operations of outside promoters with financial schemes. Hereafter when a person wishes to solicit in Watertown he must appear before the Council and explain his proposition. If it appears good and the aldermen sanction it, the agent will be permitted to canvass the city. The ordinance has been successfully tested twice.

**City Commissioners Provide Poor With Work**

Topeka, Kan.—The Board of City Commissioners have set aside a special city fund for the purpose of giving labor to the city's needy. The fund will be used for the purpose of hiring men to cut down and trim trees in all parts of the city. Only men with families will be given work. The work of cutting and trimming trees has been placed in the hands of E. B. Stotts, Commissioner of Parks. Stotts will employ two foremen from the city sanitary or street force. These foremen will be placed in charge of a number of men and the work will start on the streets the first of next week. It is planned by Commissioner Stotts to give work only to reliable men—men with families and men who are willing to work and who have hunted work in the city to no avail. Laborers will be given \$1.25 a day. With teams they will be given \$2.50 a day. The pay of the foremen has not been settled. This is the first time in the history of the city that an effort has been made to take care of the poor. The idea originated with Mayor Billard and has been supported strongly by Commissioner Stotts and Commissioner Miller. Commissioner Tandy has tried to provide work on the streets. Commissioner Miller hopes to have trees all over the city trimmed that the street lights will have a good effect in the summer. The thick growth of trees has made it impossible for the arc lights to shine outside of a small radius directly under the lights in many parts of the city.

**Street Commissioner Saved City \$27,000 Last Year**

Newport, R. I.—A saving for the city of Newport during the past year of nearly \$27,000 was made in the highway department through the management of Street Commissioner J. K. Sullivan, who has been re-elected for another year. Mr. Sullivan appears to have a faculty of completing specified work for less than the estimated costs on which the appropriations are based. Last year there was allotted to the highway department by the Representative Council little over \$170,000 in appropriations, and with a small amount from other sources the total receipts of the department were \$171,315.05. Out of this amount the Street Commissioner has turned back to the City Treasurer \$26,679.65, which is an excellent showing for a single year. On about every job of new work laid out by the finance committee of the Council for the street department to do during the year the commissioner has been able to show a balance unexpended. The largest saving was made on the installation of a new sewerage system in the northeastern section of the Second Ward. Besides the piping it was necessary to install a pumping station and it was estimated that the work would cost the city \$25,000. This was the amount of the appropriation made by the Council. The system has been installed and from all accounts is working to the satisfaction of all, but according to the annual report of the commissioner submitted to the Council at its meeting on Monday, the installation of this system was done for \$7,261.36 less than the amount of money appropriated. The Council also at the beginning of 1911 appropriated \$16,150 for the installation of granolithic sidewalks in various parts of the city. The work was not put out to contract, but instead was turned over to Commissioner Sullivan to do. His report in regard to this shows that the sidewalks as designated were put in for the sum of \$10,372.06, leaving a balance unexpended of \$5,777.94, which under the city charter has been turned back to the city treasury, as money appropriated for specific purposes cannot be used, if there should be a balance, for other work. Other balances unexpended are shown in the report from appropriations made for macadamizing roads, laying sewers, etc., these varying in amount from several hundred dollars down to three cents, this amount being left unspent from an appropriation made for the installation of a fountain on Touro Park.

### Laborers Get Pensions

Boston, Mass.—The laborers' pension act which this city will put into operation March 1, 1912, is the first instance of a municipality in America providing retirement with half pay to its laborers. There has been a persistent effort made for years to establish this pension or a similar one. Power was conferred by the last legislature to inaugurate such a law in Boston, the salient portions of which are as follows: "1. There shall be a retirement board for the laborers employed by the city of Boston consisting of the Mayor, the auditor and treasurer of the city, who shall discharge the duties thereby imposed upon them without additional compensation. 2. Any laborer employed by the city of Boston, who has reached the age of 60 years, and who has been in the service of the city for a period of not less than twenty-five years, and who is physically incapacitated, shall, at his request, and with the approval of the retirement board, be retired from service, and shall receive for the remainder of his life an annual pension equal to one-half the compensation which he received during the last year of his service for the city. It shall be the duty of said board to retire any laborer in the service of the city, who has reached the age of 70 years and has served the city for a period of not less than twenty-five years." Fewer than forty come under the compulsory retirement provision, while the total number eligible to pension is 177.

### City Made Many Improvements Last Year

Snohomish, Wash.—The year 1911 left behind it monuments of progress that will long stand out, marking it as a great year. The one great municipal improvement of the year was the building of a 16-mile gravity water pipe line to the headwaters of the Pilchuck, located in the mountains; instead of pumping water from that stream inside the city limits, after it had passed through Granite Falls, Hartford and Machias. The line cost \$110,000, not counting the concrete reservoir completed in 1910. The water from this line will be used for the first time within a few days. The big steel wagon bridge built by the county at a cost of \$47,000 was completed in 1911, and was second only to the water pipe line in importance. The trunk sewer was extended seven blocks, and seven sub-sewers were built. In the way of public service improvements the Everett Gas Company laid miles of mains, built a new structure on the rear of their First street building, to take care of that department. This company also set new electric light poles all over the city, restrung wires and installed the new luminous magnetite street lighting system, contracted for a period of ten years.

### Nearly \$2,000,000 Spent for Public Improvements

Grand Rapids, Mich.—The Board of Public Works leads all the other city departments for doing big things on a big scale. The year of 1911 saw the new \$400,000 filtration plant practically completed; the consolidation of the pumping and lighting stations under one roof, at an approximate cost of \$300,000; the East Side trunk sewer well started, on a contract price of \$357,000, and work begun on the \$125,000 Leonard street concrete bridge. Many miles of streets were improved with asphalt, macadam and brick. The flood walls have been steadily nearing completion and the East Side sewage pumping station, below the old Felt Boot plant, at the mouth of the trunk sewer, is well under way. Roughly estimated, the Board of Public Works has been responsible for the expenditure of between \$1,000,000 and \$2,000,000. With the consolidation of the old lighting station with the new pumping station, about 300 arc lights have been added to the capacity of the old plant. The combination of these plants will materially reduce the cost of operation, and it is confidently hoped that from now on the waterworks and lighting system will be a good paying investment to the city. The practical completion of the flood walls and the scalping of the river assures flood protection to almost every section of the city. Just as soon as South Front street is raised between Pearl and West Bridge streets, and the East Side problem between Pearl street and Michigan avenue is solved, flood protection will have been secured at almost the original estimate. Another year will see the completion of the filtration plant and the Leonard street bridge, the new lighting and pumping station will be finished, and the construction of the big East Side trunk sewer will be a thing of the past.

### Would Bar Wheels That Cut Roads

Boston, Mass.—The Massachusetts Highway Commission, in its annual report to the Legislature suggests the passage of a law providing that no person shall operate upon the highways in this commonwealth any vehicle with wheels so constructed as to cause any unusual amount of damage to such highways, and that no traction engine, motor truck or other vehicle shall be operated on the highways having upon the wheels any clamps, ribs or other device which may cut into or injure the road surface. Recommendation is also made that the Legislature consider whether it would be advisable to have a law regulating the weight of vehicles using the highways, the kind of wheels that shall be used and the speed at which such vehicles shall be operated. The commission also recommends a renewal of its appropriation, given in 1902 and 1907, of \$5,000,000, to be expended in five years for the construction of highways.

### Orange Mayor Reviews Year

Orange, N. J.—Reviewing municipal progress of the past year, pointing out problems which confront Orange, and referring to the discord in the Democratic majority, Mayor Arthur B. Seymour, in his annual message read at the meeting of the Orange Common Council, also made a number of recommendations. Increased water facilities, the repaving of Main street, in the business section at least; further negotiations for grade crossing elimination; a new roadbed for the Crosstown trolley line; more sanitary quarters for the Common Council and District Court, are included in the recommendations. Mayor Seymour also urged the Council to appoint a superintendent of weights and measures with a salary which would attract an efficient man, and recommends the appointment of a foreman or practical farmer for the poor farm at Livingston, in order to make the fifty acres of land at the farm useful and perhaps profitable to the city. Comment was made upon the city lighting plant as follows: "Our municipal lighting plant is not quite a year under our control and is working entirely satisfactory. The force is efficient and painstaking and great interest in the success of the plant is taken by them. Within a few months I think we can say that our city is one of the best and most economically lighted in the country. I await with interest the first annual report and believe that it should be printed for public distribution, and on this topic let me suggest the publication of the reports of all heads of departments of the city for public distribution.

### City Establishes Municipal Store for Poor

Torrington, Conn.—The Board of Selectmen has decided to establish a municipal store from which the poor of the town will be supplied. A shop for the purpose has been fitted up in the City Hall. Supplies will be purchased at wholesale prices.

### City Engineer's Report

Erie, Pa.—The report of City Engineer B. E. Briggs shows an estimated population of the city within the city limits of 71,000. The engineer reports 129 miles of streets open, 53.84 miles of streets paved, 93.09 miles of sewers, 21 miles of street car tracks, of which 6.7 miles are double tracks; 3 interurban car lines, 5 railroads and 133 acres of parks. He reports twelve paving contracts completed last year, one of which was a brick pavement, and eight incomplete contracts. The average price per square yard for asphalt paving was \$1.33, a decrease of 11 cents under the price charged in 1910. During the year 2.09 miles of pavement were laid, the total number of square yards of pavement now laid in the city to date being 1,141,842.40. Since the asphalt plant was completed and put in operation 9,133 yards of paving have been laid. It cost the city during the past year \$350 to maintain wooden bridges and culverts. Intersecting sewers will be completed as soon as funds are available. The city engineer recommended a system of storm water sewers, and reported on the garbage disposal plant which was under consideration during the last administration. Under lighting the city engineer reported 737 arc lights and 570 gas lights in operation. The financial report of the city engineer showed a large amount returned through that department to the city. For laying and repairing sewer connections and repairing cuts in pavements, \$3,890.61 was received. For surveys, sale of old stone and paying bills \$11,592.76 was received.



## LEGAL NEWS

**A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities****Payment of Officer's Salary—Injunction**

Johnson vs. City of Milwaukee et al.—The Commissioner of Public Works of Milwaukee appointed a superintendent not in accordance with the civil service rules. Under the direct provisions of the civil service law the treasurer was not authorized to pay the salary of such commissioner out of any of the public money. Held that payment of such salary could be enjoined as an unlawful expenditure of public funds, and, while to secure the injunction it might be necessary to show that the superintendent had no title to the office, such injunction was not being used as a substitute for quo warranto; that attack on the appointment being collateral merely.—Supreme Court of Wisconsin, 133 N. W. R., 627.

**Awning on Sidewalk—Negligence**

Herman vs. City of New York.—A city is not obliged to remove every obstacle from its sidewalks, but only those from which danger to the public may reasonably be apprehended, so that where it is sought to charge a city on a theory of negligence in failing to cause the removal of an awning in front of a theatre, by which the person complaining was injured, and the awning is shown to be one of such as are in common use, and no accident appears to have hitherto resulted therefrom, no liability is established on such theory.—New York Supreme Court, 131 N. Y. S., 1032.

**De Facto Officers—Authority**

Harrison vs. Borough of Madison et al.—A de facto mayor of a borough who acts under color of authority may approve an ordinance, and his approval gives it validity.—Court of Errors and Appeals of New Jersey, 81 A. R., 755.

**Extension of City Boundaries—Review**

Lawrence et al. vs. Town of Mansfield.—The question of whether the limits of a municipality should be extended is a quasi legislative one. Where the legislative body of a municipality has decided on an extension, this court can set it aside only when it is unreasonable, and it will not undertake to say it is unreasonable without abundant evidence to clearly establish that fact.—Supreme Court of Louisiana, 56 S. R., 633.

**Violation of City Ordinance—Conviction**

Flannigan vs. City of Rome.—Where a city council tries a person for the violation of a municipal ordinance, a judgment of guilty may be rendered by a mere majority vote, unless the charter of the city otherwise provides.—Court of Appeals of Georgia, 72 S. E. R., 1099.

**Intoxicating Liquor—Ordinances—Validity**

Turner vs. Town of Lineville.—Ordinances prohibiting the sale, gift or other disposition of spirituous, vinous or malt liquors in violation of the laws of the State, and prohibiting the making, aiding, abetting, procuring or counseling of an unlawful sale, purchase, gift or other unlawful disposition of such liquors, and prohibiting one from acting as assistant friend of the seller or purchaser, are not inconsistent with the State laws, within Code 1907, making an ordinance invalid so far as it undertakes to supersede a State law within the municipality, or where its enforcement would be incompatible with enforcement of the State law.—Appellate Court of Alabama, 56 S. R., 603.

**Contracts—Assignment of Sums Due**

United States Fidelity & Guaranty Co. vs. Mayor and Common Council of City of Newark et al.—A stipulation in a contract for work for a city that 10 per cent. of the final estimate should be retained for one year from the acceptance of the work as a guaranty that the contractor had executed his contract, and at the end of the year the amount remaining after making necessary repairs should be paid to the contractor after satisfactory evidence that laborers and materialmen have been paid, does not provide for the retention of the money for the protection of laborers and materialmen, and an assignment by the contractor of the moneys due under the contract prior to the filing of any lien for labor or material passes the amount so retained free from any lien.—Court of Errors and Appeals of New Jersey, 81 A. R., 758.

**Paving Assessments—Statutes—Ordinances**

State ex rel. Meek v. City of Chillicothe et al.—A city, in determining what property is liable for paving assessments, is bound by the statute then in force which constitutes its charter, and an ordinance on the subject contrary thereto is void.—Supreme Court of Missouri, 141 S. W. R., 602.

**Special Assessments—Sidewalks**

Kindley vs. Rogers, County Treasurer, et al.—A city of the third class cannot lawfully include in a special assessment for a sidewalk the cost of grading that portion of the street on which the walk is laid.—Supreme Court of Kansas, 118 P. R., 1037.

**Contracts for Services—Physician**

Jacobs vs. City of Elmira.—A provision of a city charter authorizing the city to contract for services or supplies, and to provide generally for the welfare of the city, did not impliedly authorize the city to make a binding contract for medical services for a specified time.—New York Supreme Court, 132 N. Y. S., 54.

**Civil Service Removal of Officers**

State ex rel. Savin vs. City of Seattle et al.—While, under Seattle Charter, permitting removal of an officer or employe only upon filing of a statement of the reasons therefor, and providing for review of such removal by the Civil Service Commission, a removal cannot be sustained upon a ground different from that relied upon by the removing officer; it may be sustained on a finding that the officer is guilty of a lower grade of the offense charged.—Supreme Court of Washington, 118 P. R., 821.

**Torts—Nuisance in Alley**

City of Pawhuska vs. Rush.—In an action against a city and a private person for damages resulting from a nuisance in an alley plaintiff alleges as her cause of action that defendant permitted the nuisance to be constructed and maintained in the alley, and that "the defendants and each of them failed, neglected and refused to abate such nuisance when notified to do so." Held that the petition sufficiently alleges notice to the city of the existence of the nuisance, and negligence on its part thereafter in removing same to be good against a demurrer.—Supreme Court of Oklahoma, 119 P. R., 239.

**Additional Burden on Highway—Right of Abutting Owner**

Quinby vs. City of Cleveland, O., et al.—Under the laws of Ohio it would seem that the owner of property, when a street is dedicated to public use, retains a property right in the highway, which is as much property as the lot itself, but that, in dedicating the street he does so in contemplation of the public uses to which the street may be put, and that when the street or highway is used for a public purpose, in contemplation of such use, his property right in the street is not taken, but may be damaged to some extent, which damage he has the right to recover.—United States Circuit Court, 191 F. R., 68.

**Change of Grade of Street—Damages—Evidence**

Drew et al. vs. City of Butte.—A complaint in an action against a city for damages by a change in the grade of a street, which described the property as a designated lot in a specified block of a certain addition to the city, according to a private plat, and that the lot adjoined a street named, and a deed describing the lot by metes and bounds, and by the use of the same number in the same block "of reserve portion" in the addition mentioned, sufficiently described the property, where the evidence showed that the plat of the addition had been filed; that at the time the plat was filed a part of the land embraced within it was acre property, and that subsequently such part was subdivided into lots and blocks, and a private plat made; that plaintiff's property was a part of the acre property subdivided, which was further identified by street number in the city.—Supreme Court of Montana, 119 P. R., 279.

**Public Improvements—Assessment—Estoppel**

Edmonds Land Co. vs. City of Edmonds.—Where a trustee, holding title to land situated outside the boundaries of a municipality signed a petition for the construction of a sea gate as a municipal improvement, the legal owner was not estopped to question the validity of a municipal assessment for benefits, on the ground of the location of the property, since the petition could not extend the assessing power of the municipality to lands beyond its boundaries.—Supreme Court of Washington, 119 P. R., 192.

## NEWS OF THE SOCIETIES

### Mayors' Society of New Jersey

This society was formally organized January 13 in the City Hall, Elizabeth, N. J., at a meeting of the mayors from all parts of the State, who convened to plan a definite campaign for the elimination of all grade crossings.

The meeting was called as a result of the movement started by Mayor Julian A. Gregory, of East Orange, who conferred with a similar gathering of municipal chief executives in that city about four weeks ago, at which time a temporary organization was effected.

About twenty mayors were present and as many more sent letters, stating their inability to attend, but giving assurances of their sympathy with the movement and pledging their support. It was the sentiment of those present that the grade crossings in the State must go and that the railroads shall bear the entire expense.

The question of the preparation of a suitable bill to compel the railroads to eliminate their grade crossings was the chief topic of discussion, and it was finally decided to submit the matter to the consideration of a committee with instructions to report back at the next meeting of the society.

Mayor Frederick W. Donnelly, of Trenton, who was temporary chairman of the organization, called the meeting to order at 3 o'clock. Mayor A. S. Pierson, of Morristown, temporary secretary, read the minutes of the previous meeting held in East Orange, and following a short speech of welcome by Mayor Stein, the business of forming a permanent organization was taken up.

A. B. Seymour, Mayor of Orange, chairman of the committee on constitution, presented a constitution which was unanimously adopted. Mayor Gregory was nominated for the office of president, but declined in favor of Mayor Donnelly. To relieve Mayor Donnelly of putting the question of his own election, Mayor George N. Seger, of Passaic, rose to the occasion and handled the situation so adroitly that Mayor Donnelly was elected unanimously and without embarrassment to himself.

Mayor A. S. Pierson was elected secretary and Mayor A. B. Seymour treasurer. Mayor Gregory, Mayor Stein, Mayor Seger, Mayor Joseph H. Firth, of Phillipsburg, and Mayor Jacob Haussling, of Newark, were elected as vice-presidents. An executive committee of five members called for by the constitution will be appointed later by Mayor Donnelly.

### National Highways Association.

Fifty thousand miles of national highways in the United States is the aim sought by the National Highways Association, which is working on this plan with energy. It is pointed out that while this may seem a revolutionary idea, it is little more than two per cent. of the total road mileage of the country.

The National Highway Association, whose president is Charles Henry Davis, of South Yarmouth, Mass., is formed by men interested in the subject of good roads in general and national highways in particular. The tentative plan is for a series of national highways which cross and recross the United

States from east to west and from north to south, connecting and inter-connecting all States, and designed to furnish the maximum of convenience and utility. These highways have been actually and carefully located by trained and experienced road engineers working with a large and complete force for more than four months. The proposed roads are suggested that a start may be made to obtain for the United States good roads like those in other nations.

The proposed roads include six main and thirteen trunk line highways with terminals and mileages.

### Society for Promoting Efficiency

Moved by the desire to adopt methods of scientific management and install systems to obtain the greatest efficiency in manufacturing, mercantile, public service and municipal corporations, a body of business and professional men, educators, economists and publicists have formed the Society for Promoting Efficiency, which is to be incorporated under New York State laws.

According to a tentative draft of the constitution, efficiency, or scientific management, which was brought prominently to the attention of the public last winter when Louis D. Brandeis, of Boston, declared that railroads were losing \$1,000,000 a day through inefficient methods, will be studied and put into effect wherever possible throughout the country.

According to James G. Cannon, president of the Fourth National Bank, New York City, who is chairman of the organizing committee, the organization has more than two hundred and fifty members, with about one thousand proposals for membership.

Raymond B. Fosdick, Commissioner of Accounts, who has introduced economical methods in the city administration and who is a member of the committee, was enthusiastic over the organization.

The first meeting of the society will be held early in February at the Merchants' Association, 54 Lafayette street, New York, N. Y. Among the members of the organizing committee are A. Barton Hepburn, president of the Chase National Bank; E. C. Converse president of the Bankers' Trust Company; Joseph D. Oliver, William Jay Schieffelin, Isidor Straus, Henry R. Towne, Dr. Luther H. Gulick, John Hays Hammond, Prof. Edward T. Devine, of Columbia University; Prof. Irving Fisher, of Yale University; Prof. Edwin F. Gay, of Harvard University; Prof. W. M. F. Goss, of the University of Illinois; Prof. Jeremiah W. Jenks, of Cornell University; Dean Joseph F. Johnson, of New York University; Prof. Charles E. Lucke, of Columbia University; Dean Leon C. Marshall, of Chicago University; Prof. E. R. A. Seligman, of Columbia University; Prof. James T. Young, of the University of Pennsylvania; Albert J. Beveridge, F. A. Cleveland, Raymond B. Fosdick, Senator Thomas B. Gore, Charles H. Grasty, Norman Hapgood, Judge P. S. Grosscup, Charles P. Going, Judge Martin A. Knapp, H. H. Kohlsaat, Judge Ben B. Lindsay, S. S. McClure, Governor Thos. R. Marshall, Robert L. O'Brien, Adolph S. Ochs, Walter H. Page, John S. Phillips, George H. Putnam, Melville E. Stone and Oswald G. Villard.

### Association for Standardizing Paving Specifications

About 150 members met at the Grunewald Hotel, New Orleans, La., January 8, for a three days' session. The purpose of the convention is to secure for all cities in the country the best character of paving and to adopt a standard for each of the various materials. Each kind of paving is the concern of a separate committee who assist the convention in adopting standards and grades. When standard specifications for all kinds of paving have been adopted the work of the association will be practically at an end. This work is now nearly completed and it may be that the holding of annual conventions will be omitted after this year.

At the first session President George W. Tillson introduced Mayor Behrman, who made the address of welcome. He reviewed the recent work of draining and paving in New Orleans and called particular attention to the municipally-owned docks and belt railroad. The address was responded to by Nelson P. Lewis, chief engineer of the Board of Estimate and Apportionment, New York City.

The newly-appointed committees are as follows:

Committee on Asphalt—George W. Tonson, chairman, Toledo; Clayton F. Smith, Chicago; Otto H. Klein, New York; George H. Norton, Buffalo; Felix Kleeburg, New York; F. N. Bingham, Spokane; Adam Wirth, New Orleans; W. L. Hempelmann, St. Louis.

Committee on Bituminous Concrete—Linn White, chairman, Chicago; Fred Gabelman, Kansas City; W. H. Connell, New York; J. H. Weatherford, Memphis; A. C. Schrader, Chicago.

Committee on Bonds and Guarantees—Captain W. J. Hardee, chairman, New Orleans; Henry C. Allen, Syracuse; E. A. Kingsley, Little Rock; W. A. Hogue, Charleston, W. Va.; I. D. Moore, New Orleans; C. A. Schrader, Indianapolis.

Committee on Brick—Edward H. Christ, chairman, Grand Rapids; H. W. Klausmann, Indianapolis; Charles E. P. Babcock, Buffalo; J. H. Johnston, Kalamazoo.

Committee on Cement and Concrete—N. E. Murray, chairman, Chicago; George S. Smith, New Orleans; Paul McGeehan, Kansas City; Peter T. McNeerney, Toledo; J. A. Hooke, St. Louis.

Committee on Macadam—Walter G. Leininger, chairman, Chicago; L. C. L. Smith, New York; W. T. Brooks, Norfolk; A. S. Lewis, Chicago.

Committee on Stone Block—M. R. Sherrard, chairman, Newark; John F. O'Toole, Pittsburgh; M. F. McKenna, Bridgeport; Thomas F. McGilvray, Duluth; H. B. O'Connell, Newark.

Committee on Wood Block—N. P. Lewis, chairman, New York; W. Purves Taylor, Philadelphia; Ellis R. Dutton, Minneapolis; L. R. Ash, Kansas City; T. L. Willis, New Orleans; L. A. Dumond, Chicago.

On Thursday, the 11th, a banquet was given at the Grunewald. On Friday a boat ride was given on the river. This included an inspection of the United States Naval Station and also a visit to the plantation sugar mills, which were seen in full operation. On Saturday the members were taken in automobiles to inspect the various points of interest about the city, the public works, and particularly the water purification plant.



**Coal Smoke Abatement Society**

An International Coal Smoke Abatement Exhibition is to be held in the Royal Agricultural Hall, Islington, London, England, March 23 to April 4, 1912, inclusive, under the auspices of the Coal Smoke Abatement Society. At this exhibition it is planned to show all the recognized means of diminishing or abolishing factory and domestic smoke. Similar exhibitions recently held at Sheffield and Glasgow excited much attention, and the present undertaking has been accorded strong support. The exhibits will be classified as follows:

(1) Smokeless fuels, natural and artificial, for furnaces and household use.

(2) Domestic heating. Section A. Open coal-fire grates; stoves of all kinds; kitcheners; kitchen ranges; draft regulators and other appliances devised to prevent smoke from bituminous coal, or to consume anthracite or other smokeless coal or fuels for domestic use. Section B: Gas fires and stoves; acetylene and other gas producers and generators for domestic heating; heating and cooking appliances. Section C: Electric apparatus; heating and cooking appliances for domestic use.

(3) Furnaces used for heating rooms and buildings; hot water and steam circulation.

(4) Section A: Boiler furnaces; special fire bars; mechanical stokers; fuel economizers; smoke-preventing bridges and other appliances for steam boilers and general industrial purposes; briquet-making machinery; destructors and refuse consumers. Section B: Suction gas plants; gas and other engines for the generation of motive power; waste-heat appliances. Section C: Electric appliances and apparatus for the generation and utilization of motive power.

(5) Testing appliances; thermometers; pyrometers; meters; gauges, etc.; tintometers; inventions for regulating temperature and abatement of smoke and noxious gases; radiators, thermostats, etc.

(6) Fans and other appliances for ventilating and removal of deleterious dust; apparatus for humidifying, refreshing, or cleansing the air.

(7) Apparatus to prevent emission of dust or grit from chimneys.

The Coal Smoke Abatement Society will arrange a series of conferences on the subject, in connection with the exhibition, and municipalities and societies interested in the abatement of smoke will be invited to send delegates.

**Kansas Good State Roads Association**

The tenth annual meeting will be held at Emporia, Kan., January 17-18. The program of papers to be presented includes the following: "Gulf to Winnipeg; or Benefit of Cross-State Highways," John C. Nicholson, Newton; "Progress in Good Roads in Kansas in 1911—Our Present Needs," W. S. Gearhart, State Highway Engineer; "The State's Relation to Good Roads," Hon. Arthur C. Tapper, Topeka; "Advantages of the New Road Law," Hon. J. M. Gray, Kirwin; "Interpretation of the New Road Law," Attorney-General Dawson; "Stone Road Construction," Senator G. H. Hodges, Olathe; "Necessity of a New Bridge Law," C. F. Osborne, County Engineer, Howard; "The Railroad and Good Roads," Frank Jarrell, Topeka; "Sand-Clay Roads," W. B. Harris, County Engineer, Hutchinson; "Oiled Roads," J. M. Allen, Chanute.

**League of Commission Governed Cities of South Dakota**

Commissioners of commission governed cities of South Dakota held a meeting at Huron January 4 and formed a permanent organization. Mayor Koeph, Huron, occupied the chair, and S. S. Oviatt was appointed secretary. The chair appointed the following a committee on permanent organization: Mayor E. M. Hall, Aberdeen; Mayor George M. Burnside, Sioux Falls; City Attorney A. L. Wyman, Yankton, and Mayor L. L. Stephens, Pierre. A first annual meeting will be held later at which a permanent set of by-laws will be presented for adoption. One of the first things the association seeks to accomplish is to change the percentage of voters necessary to secure a recall election from the present legal requirement of 15 to 25 per cent. or more.

**Calendar of Meetings****January 16-18.**

**Wood Preservers' Association**—Annual Convention, Chicago, Ill.—F. J. Augier, Secretary, Mount Royal Station.

**January 17-18.**

**American Society of Civil Engineers**.—Annual Meeting, New York City.—Chas. Warren Hunt, Secretary, 220 W. 57th St., New York City.

**January 17-19.**

**Illinois Society of Engineers and Surveyors**.—Annual Meeting, Urbana, Ill.—E. E. R. Tratman, Secretary, 1138 Monadnock Bldg., Chicago, Ill.

**January 18-20.**

**Society of Automobile Engineers**.—Annual Meeting, New York City.—Coker F. Clarkson, Secretary, 1451 Broadway, New York City.

**January 23-24.**

**Kansas Engineering Society**.—Annual Meeting, Manhattan, Kan.—W. S. Gearhart, Secretary, Manhattan, Kan.

**January 23-25.**

**American Society of Heating and Ventilating Engineers**.—Annual Meeting, New York City.—W. W. Macon, Secretary, 29 W. 39th St., New York City.

**January 24-26.**

**Canadian Society of Civil Engineers**.—Annual Meeting, Montreal, Que.—C. H. McLeod, Secretary, 413 Dorchester St., West Montreal, Que.

**January 24-26.**

**Ohio Engineering Society**.—Annual Meeting, Cleveland, O.—Clyde J. Knisely, Secretary, New Philadelphia.

**January 25-27.**

**Indiana Engineering Society**.—Annual Meeting, Indianapolis, Ind.—Charles Brusman, Secretary, Union Trust Bldg., Indianapolis, Ind.

**January 29-February 3, 1912.**

**Second Annual New York Cement Show**—Madison Square Garden.—J. P. Beck, General Manager Cement Products Exhibition Co., 72 W. Adams St., Chicago, Ill.

**February 14-15.**

**New England Association of Gas Engineers**.—Annual Meeting, Boston, Mass.—N. W. Gifford, Secretary, 26 Central Sq., East Boston, Mass.

**February 21-23.**

**Iowa Engineering Society**.—Annual Meeting, Davenport, Ia.—S. M. Woodward, Secretary, Iowa City, Ia.

**March 6-9.**

**National Brick Manufacturers' Association**.—Annual Convention, Chicago, Ill.—T. A. Randall, Secretary, Indianapolis, Ind.

**March 7-12.**

**International Brick and Clay Products Exposition**—Coliseum, Chicago, Ill.—Office, 815 Chamber of Commerce Bldg., Chicago, Ill.

**March 7-12.**

**International Brick and Clay Products Exposition**, Chicago, Ill.—Office, 815 Chamber of Commerce Bldg., Chicago, Ill.

**June 3-8.**

**American Water Works Association**.—Annual Convention, Louisville, Ky.—John M. Diven, Secretary, Charleston, S. C.

**PERSONALS**

BROWN, WM. L., San Bernardino, Cal., has been appointed City Engineer of Rialto, Cal.

BUMGARDNER, JOHN D., Washington, Pa., has been chosen as new Chief of Police.

CRANE, FRANCIS E., Amsterdam, N. Y., has been reappointed City Engineer. Mr. Crane has held this same position for many years.

DIVEN, JOHN M., Charleston, S. C., has tendered his resignation as Secretary and Superintendent of the Charleston Light & Water Company that he may accept the position of Superintendent of the water plant at Troy N. Y.

FORRESTAL, ED. W., Eveleth, Minn., has been made Superintendent of the city water works system.

FOX, ALVIN B., Perth Amboy, N. J., has been elected County Engineer. Mr. Fox is a graduate of Rutgers, class of 1908.

FRANKLIN, HARRY D., Newark, N. J., superintendent for the last twenty years of the Department of House Sewer Connections of the Newark Board of Works, died at his home from pneumonia on January 8.

FULLER, GEORGE W., Lincoln, Neb., has been retained by the city to make an investigation of the water and sewer systems; with recommendations for protection to the city water supply.

HILLABRANDT, LUCIAN, Johnstown, N. Y., has been reappointed Superintendent of the Johnstown water works.

KENNEDY, WM. E., Waterbury, Conn., has been appointed Superintendent of Streets and Sewers.

MINER, HARLAN S., Gloucester City, N. J., has been elected President of the City Board of Health.

MOULTON, HENDERSON S., Willimantic, has been appointed Superintendent of the city water works.

MOUNT, FRANK D., Atlantic City, N. J., has been appointed City Engineer.

ROSH, FRANK D., Major, Eastington, Ky., has been elected Mayor to fill the unexpired term of Henry C. Bourland, retired.

THOMPSON, HARRY J., Hamilton, O., has been appointed Superintendent of the Water Works Department.

TITUS, FRANK P., Englewood, N. J., recently reappointed Police Chief for a term of three years, is serving his fifth term in that capacity.

TRECARTIN, DR. DAVID M., Bridgeport, Conn., has been elected President of the Health Board.

TWITCHELL, HON. V. M., Jennings, La., who has served as Mayor of Jennings for several terms, died January 4.

WALCOTT, E. A., San Francisco, Cal., has been elected president of the Civil Service Commission.

The following mayors have been elected:

**FLORIDA.**

Eustis—A. M. Dewitt.

Mulberry—Dr. W. K. Murphy.

**GEORGIA.**

Louisville—Dr. Henry C. Perkins.

Montezuma—Yancey Hill.

Swansboro—Sol Tyson.

**NEW JERSEY.**

Beverly—Dr. James V. Roberts.

## MUNICIPAL APPLIANCES

### Steam Shovel Attachment for Derricks

A valuable invention in excavating machinery which enables a contractor owning a derrick and the new attachment to do work ordinarily performed by a steam shovel, besides doing a certain kind of work to better advantage than a steam shovel does it, has been invented by Storrs M. Bishop, of Schenectady, N. Y., and placed on the market by the Union Iron Works, Hoboken, N. J. During the past few years many inventions and improvements in all lines of excavating machinery have been made, as has been apparent to readers of the patent claims columns of the Municipal Journal, few of them, however, more promising in its possibilities of usefulness than the Bishop excavator. For by its use any derrick having a rectangular or square boom can be converted into a steam shovel or a dipper dredge made out of a derrick boat. The apparatus, the manufacturers state, can dig anywhere a steam shovel can dig. Its range of operation is from the base of the derrick to the end of the boom, and below the base of the derrick the length of the dipper arm. The dipper arm can easily be changed if deep digging is to be done below the base of the derrick and a longer arm put in.

The excavator consists of a dipper and handle of the type used on a steam shovel which is attached to the derrick boom by means of a sliding carriage. With the dipper arm in the digging position, a cam at its end locks the carriage stationary on the derrick boom. But when the dipper arm is raised toward the dumping position the carriage is released automatically so that the dipper can travel out along the derrick boom to the end before dumping. The carriage can be locked to the derrick boom at any point, so that digging can be done over a large area without shifting the derrick.

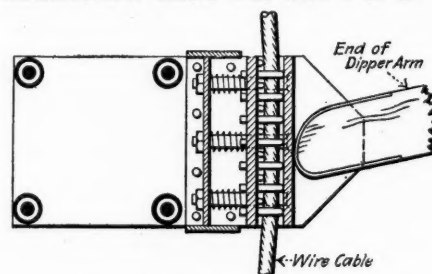
The dipper is handled by means of both the hoisting and boom-haul lines. The hoisting line is attached to the bale of the dipper and pulls it into its cut. By slacking away on the boom haul, the weight of the derrick boom is brought into play to hold the dipper down to its work in hard material. The dipper arm is raised by means of the hoist line when the dipper is full to enable it to clear the bank. If necessary the derrick boom is also raised a little. In the raised position the dipper arm automatically releases its carriage lock, and by further pulling in on the hoist line the shovel is slid out toward the end of the derrick boom, where it is dumped.

The dumping is accomplished by means of a stop iron attached to the carriage, which acts on a bell-crank connected by a cord or chain to the bolt of the drop-bottom. As the two sheaves of the hoist line approach each other near the end of the boom, the shovel-end of the dipper arm is brought closer to the boom, and at a predetermined point the dipper arm is high enough to bring the bell-crank against the dumping iron. After the dipper is dumped, the operator slacks gently on the hoist line until the carriage has returned to the desired position and then releases it altogether, so that the dipper boom swings back to the digging position and locks the carriage.

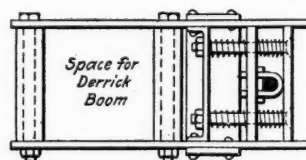
The carriage consists of two side plates separated by a channel deep enough to allow the boom to pass between them. Above the channel are four rollers, two above and two below the boom, mounted on bolts passing through the side plates. The dipper arm is hung on a pin at the lower end of the carriage. The carriage is not locked to the boom itself, but to a wire cable fastened securely to each end of the boom, used solely for this purpose. The construction of the locking device is shown in the diagram. The cable

passes between two flat plates hung on bolts from the channel connecting the side plates. These plates are held apart by springs in the released position, but are pressed together so as to grip the cable by the cam-shaped end of the dipper arm. The grip is made positive by a system of U-shaped rods encircling the cable and pressed against its lower side, alternating with transverse rods on the upper side. The arms of the U-rods slide through holes in the upper clamp plate. This plate is held away from the channel by a separate set of stout helical springs, which prevent the crushing of the cable.

As to the capacity of the shovel, the manufacturer states that with a 45 de-



Sectional Elevation.



DETAIL OF CARRIAGE.

gree swing 60 5-8 yard buckets have been handled. With 180 degree swing, 45 per hour, and with 120 degree swing, 60 per hour.

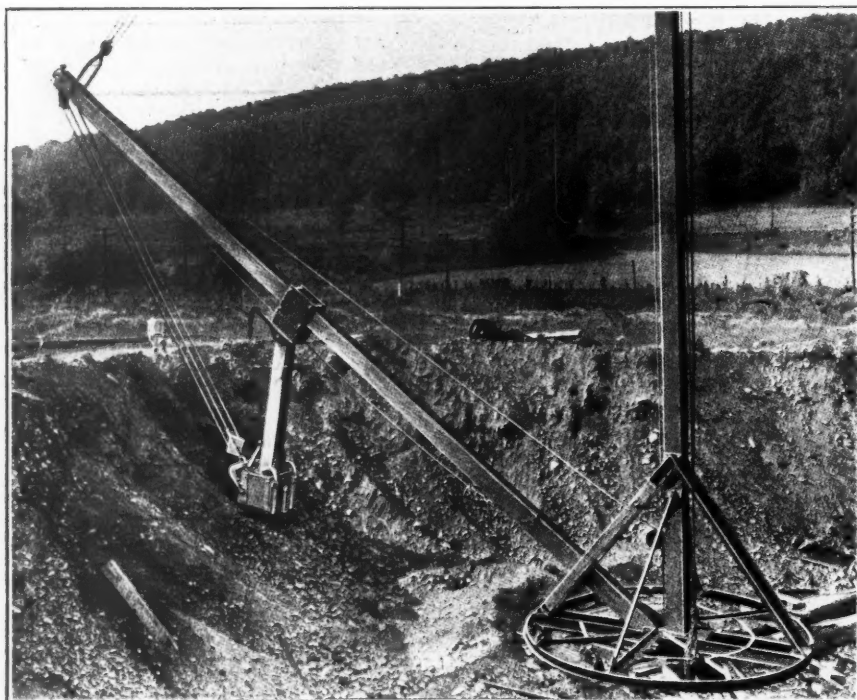
In excavating for sewage disposal tanks, water filters, etc., the device has the advantage of covering a wide area with few shifts of the derrick. In excavating trenches for water pipes and sewers the hoisting engine and derrick are mounted on a turntable platform.

### Concrete Mixer With Low Feeding Hopper

The Elite Manufacturing Co., Ashland, O., makes a concrete mixer of the continuous type which has a feeding hopper placed much closer to the ground than is usual. It is claimed that the construction has solved the difficulty of properly proportioning the mixture of cement sand and stone, because the materials and the machinery are all in plain view. The feature of the machine is a chain elevator for feeding placed at right angles with the mixing trough.

The driving power is supplied by a gasoline engine which drives the shaft of the mixing paddles directly. The elevator is driven by a chain of gears acting off of this shaft. A second elevator parallel with the first is driven from a jackshaft, which also carries the gear driving the stone elevator. The measuring is accomplished by the chain of the elevator passing under the hoppers and carrying with each link a definite amount of material. The mixing trough is rather longer than usual.

The paddles are made of the best malleable and mounted on a very strong square substantial steel shaft which is directly connected to the gears. The construction is very simple and there is not one complicated part about it.



BISHOP EXCAVATOR—DERRICK WITH STEAM SHOVEL ATTACHMENT.



## INDUSTRIAL NEWS

**Cast Iron Pipe.**—An attractive tonnage in comparatively small lots has been recently placed. Quotations: 4 to 6-inch, \$23; 8 to 12-inch, \$22; over 12-inch, average, \$21. These prices are shaded for large municipal contracts. New York foundries report a continued good demand from private buyers. Order books are steadily getting in good shape, and prices are undoubtedly firmer. Quotations: 6-inch car loads, \$22 to \$23.

**Lead.**—There is little interest in the market owing to the feeling among dealers that the big smelters are making up prices with little regard to natural values. Quotations: New York, 4.45c.; St. Louis, \$4.325c.

**Geological Engineers.**—A new firm of consulting engineers to enter the field of municipal engineering is the Bureau of Associated Geological Engineers, with offices at 131 State street, Boston, and 331 Fourth avenue, Pittsburgh. The Boston office, which is under the management of Myron L. Fuller, formerly in charge of the water supply investigations in the Eastern United States for the United States Geological Survey, will maintain a staff of specialists of wide experience in the various applications of geology to municipal engineering, especially as related to the problems of securing water supplies from wells and to the safety of the foundations of bridges, dams and other public works. The Pittsburgh office will deal mainly with oil and gas problems.

**Motor Apparatus.**—A souvenir program of the annual inspection of the Alliance, O., fire department contains a statement of the total saving that has been effected up to November 1, 1911, by the adoption of motor apparatus. The operating cost of the horse apparatus displaced is as follows: One horse for chief's buggy, 22 months, at \$19.44, \$427.68; two teams of horses in place of Auto No. 3, \$38.88 per team, 27 months, \$2,100.52; one team in place of Auto No. 1, \$38.88 per team, three months, \$116.64; salary of four men needed if horse-drawn, \$280 per month, \$7,560. Total cost of horse apparatus (if used), \$10,204.84. The actual cost of the motor apparatus used is given as follows: Chief's auto, 22 months, at \$11.12 per month, \$244.65; Auto No. 3, 27 months, at \$14.17, \$382.74; Auto No. 1, three months, at \$3.43, \$10.30; total cost of motor apparatus, \$637.69; total saving, \$9,567.15.

**Consulting Engineers.**—The firm of George W. Jackson & E. A. Clark Co., engineers, has been formed with offices 754-756 Jackson boulevard, Chicago, and 228 West 42d street, New York. Their specialties are: Examinations and reports on subways, tunnels, conduits, water and sewer systems, power plants, heavy foundations, patents and mining properties, designs for bridges, structural steel and conveying appliances.

**Sewage Treatment Patents.**—The Sterilization Co., 9 Clinton street, Newark, N. J., which was incorporated under the laws of New Jersey in June, 1910, has an assignment from Dr. Owen Travis and Edwin Ault, of England, of all their rights under an application for a United States patent made June 21, 1910.

**Auto Garbage Wagons.**—Developments of the past year seem to point toward the early general adoption of motor apparatus for the collection of garbage, ashes and waste. The transformation now taking place in fire departments seems likely to be followed closely by similar changes in the garbage collection and very likely other public works departments. Two recent events confirm this view:

In Cleveland, at the request of Director Springborn, of the Department of Public Works, the council committee on public works has made an appropriation for four auto trucks and four trailers. They will be used for long hauls to the central station on Canal road. In asking for the appropriation Director Springborn explained to the committee that by systematizing the collection work in the ash and rubbish hauling and garbage departments he hoped to bring about the best of service. By establishing four collection stations the long hauls will be reduced. The long hauls by the new scheme will be by auto trucks which, with their trailers, will have a ten-ton capacity.

In Atlanta, Ga., where auto garbage wagons have been used for some months, Mayor Winn recently stated in his annual message:

During the year the sanitary department removed from premises and hauled to dumps and crematories 263,681 loads of miscellaneous refuse. Of this refuse there were 460 automobile truck loads, each of said truck loads equaling 12 cart loads. Reducing the auto truck loads to cart loads the figures for the year would be 268,741 loads removed, a total of 13,448 more cart loads than were handled in 1910. The efficiency of the sanitary department was vastly increased during the past year by two modern innovations. The first was the elimination of the old objectionable night soil dumping grounds on the western side of the city, in lieu of which an arrangement was perfected whereby all night soil is turned into the trunk sewers. This arrangement brought into service the new and sanitary night soil tank wagons which have given vastly more satisfaction and resulted in greater economy.

The second of these innovations was the installation and operation of an automobile truck for the handling of garbage in the business district. This truck not only moves the garbage more rapidly but it successfully displaces numerous extensive teams and a number of laborers.

**Factories and Warehouses of Concrete.**—Under this caption the Association of American Portland Cement Manufacturers, Philadelphia, Pa., has published a book, the purpose of which is to present to those intending to build industrial buildings, a few examples of factory and warehouse construction and to give important facts concerning these buildings. There are illustrations of 235 buildings.

**Steel Tanks.**—The Warren City Tank & Boiler Co., Warren, O., has completed an extensive addition to its main tank works, having erected an all-steel extension 120 by 300 feet. The company has added considerable additional equipment to its hydraulic plant and is now in the market for a crane.

**New Paving Proposition.**—Road authorities generally recognize that if durability is desired it is a mistake to lay a pavement without a concrete foundation. The only reason for not using such a foundation in the past on all pavements has been the matter of cost. The introduction of Dolarway pavement has now made it possible to construct a highway with a concrete foundation at a cost of a little over a dollar per square yard.

The construction consists of from five to six inches of Portland cement concrete provided with the necessary expansion joints. The surface is then treated with adhesive Dolarway Bitumen and with coarse sand or fine gravel or screenings. This seals the concrete, prevents cracking and chipping and produces a wearing surface which is clean, noiseless, resilient and similar in appearance to other forms of bituminous pavement.

From the fact that no machinery is necessary for the construction of the Dolarway pavement, and from the further fact that it is constructed almost entirely out of local materials with little or no skilled labor required, his proposition is an unusually economical one.

The Dolarway Company owns and controls the Dolarway pavement and is now making arrangements with local contractors to lay this form of pavement in various parts of this country and Canada. Considerable of the territory has been already allotted, as the proposition, owing to the low cost of the pavement, is a most attractive one from the contractor's standpoint.

Every city in the country which has facilities for building concrete walks can build a Dolarway pavement as well, as no tools or machinery are used in this construction that are not required for building such sidewalks with the exception of the tank wagon for spreading the Dolarway bitumen.

After several years' experience with Dolarway pavement at Ann Arbor, Mich., during which time about 100,000 square yards were laid, the authorities are enthusiastic and declare it to be the most satisfactory and economical pavement they have ever used. In fact, wherever Dolarway pavement has been put down a similar sentiment has been engendered.

Engineers, contractors or city authorities interested in this proposition should write the Dolarway Paving Company either at their New York office, 95 Liberty street, or their western office, 510 Title & Trust building, Chicago.

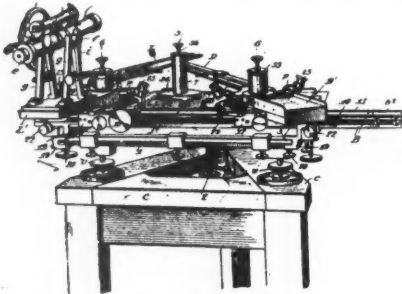
**New Fire Alarm System.**—Fire Chief Harlan P. Ross, of Bogota, N. J., is happy over the installation of an up-to-date fire alarm signal system recently put in by the Starr Electric Company, Binghamton, N. Y. The borough now has three well-equipped companies, and Chief Ross believes the department is able to handle any fire likely to occur. The whistle for the public alarm was donated by Wm. N. Smith, general manager of the American Paper Box Company.

**Mazda Lighting System.**—The Sterling Electrical Manufacturing Co., Warren, O., under the caption "From Post-hole to Lights On," have published a booklet giving general information regarding the Mazda street lighting system installed in Warren, O. The standards on which the lights were placed were made by the Flour City Ornamental Iron Works.

## PATENT CLAIMS

### 1,014,143. INSTRUMENT FOR TOPOGRAPHICAL SURVEYING. Paul Gaultier, Versailles, France. Serial No. 687.

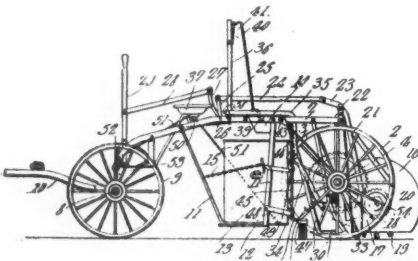
A stand; a table adjustable into a horizontal position; grooves on the under surfaces of the said table; a bar, called "base line bar," supported by means movable in the said grooves and fixable in a predetermined direction, on the table; two other movable bars pivoted and fixable in position as desired, on the base line bar; slides movable on the base line bar and supporting the pivots of the pivoted bars; a telescope mounted on one of the pivoted bars and designed for sighting points on



the land; millimetric scale and vernier on the said bar; divided circles fixed on the movable slides on the base line bar and having their centers of the pivots on the pivoted bars; microscopes disposed on the pivots of the pivoted bars; pricking cylinders for replacing eventually said microscopes; adjusting screws for enabling the bars to be brought quickly into their exact positions; plunger prickers to be brought over the intersection of the two pivoted bars; and an angled microscope for replacing eventually the said pricker.

### 1,014,165. STREET - CLEANING MACHINE. Robert Charles Menzies, Glens Falls, N. Y. Serial No. 583,076.

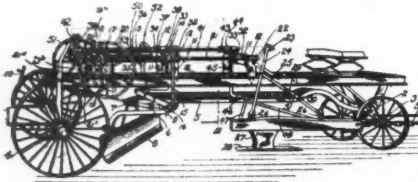
In a street-cleaning machine the combination with a wheel supported frame, a platform below the frame, of a stem, rearwardly extending arms integral with the stem at the lower end thereof, a scraping brush fixedly connected to said arms, a spring connecting the upper end of the stem to the frame and constituting means



for yieldingly supporting the brush out of contact with the ground, a yoke-like link pivotally connected to the hangers and to the stem, a foot lever carried by the frame and a flexible connection between the foot lever and the stem and operable to shift the stem against the stress of the spring and to move the brush into contact with the ground.

### 1,014,023. ROAD-MACHINE. Frank B. Peck, Mount Vernon, Mo. Serial No. 605,567.

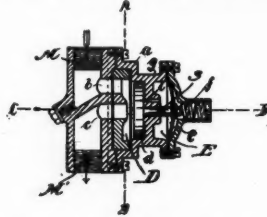
In a road machine, the combination with a suitable truck, of a shaft journaled on said truck and provided with a cranked portion, means for actuating the shaft, a hanger bar carried by the crank, a link carried by the hanger bar, and a plow having its frame suspended from forward and



back positions to said hanger bar and link respectively, said link being formed in separate members, and each member being provided with a pin and a plate having a plurality of apertures adapted for receiving said pins.

### 1,014,267. AUTOMATIC VALVE-CONTROLLED GAS LIGHTER AND EXTINGUISHER. Heinrich Sussmann, Berlin, Germany, assignor to The Deutsche Gasglühlicht Aktiengesellschaft (Anergesellschaft), Berlin, Germany, a Corporation of Germany. Serial No. 576,040.

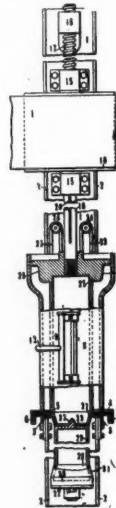
An automatic valve-controlled gas lighter and extinguisher comprising in combination, a casing having a main inlet and outlet, a spring-controlled valve arranged to normally intercept the flow of gas through said outlet, a partition serving as a stop against opening movement



of the valve and dividing the casing into a gas chamber and a diaphragm chamber, a diaphragm in said chamber connected with the valve, said partition having an opening to establish communication between said gas and diaphragm chambers and arranged to be closed when the valve seats against said partition, and a pilot-light mechanism communicating with said casing and controlled by said valve.

### 1,013,954. METHOD AND MACHINE FOR MAKING CEMENT SEWER PIPE. Robert Lee Rickman, Vancouver, British Columbia, Canada. Serial No. 566,076.

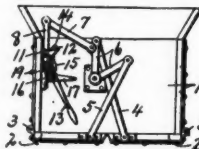
In apparatus of the character described, in combination, a mold, a sectional core, means to move the mold and core rela-



tively to each other, and means to cause relative rotative movement between the sections.

### 1,013,929. DUMP-WAGON. Wilbur L. Collins, Newark, N. Y., assignor to Newark Wagon Co., Newark, N. Y., a Corporation of New York. Serial No. 583,148.

A dump wagon comprising a box having laterally-swinging bottom doors, upwardly-extending bell crank levers at each end of and having their fulcrums eccentrically disposed with respect to the ends of the box, a pair of links connecting each of the bell cranks to said doors, the links of each pair crossing each other, a longi-



tudinally-extending rock-shaft at one side of and greater length than the box, crank arms projecting from said shaft, and a link connection between each of said crank arms and one of the arms of each of the bell crank levers, and releasable means for rocking the shaft in one direction.

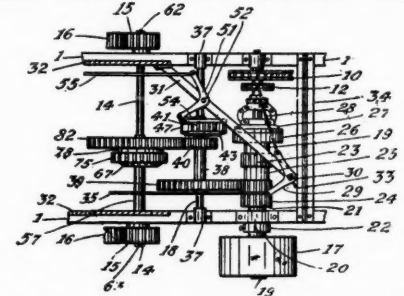
### 1,014,477. POLE-ERECTING APPARATUS. John M. Humiston, Berwyn, Ill. Serial No. 364,957.

In a pole erecting apparatus the com-

bination of a wheeled platform; a derrick mounted upon one end of said platform; steering knuckles associated with the wheels of said platform at the end supporting said derrick, whereby said derrick may be brought conveniently into position for operation; an air drill suspended from said derrick by tackle; an air hoist associated with said derrick and adapted to operate said tackle, said derrick and hoist being jointly adapted to bring said air drill into position for operation, substantially as described.

### 1,013,977. TRACTION-ENGINE GEARING. Edwin M. Wheelock, Minneapolis, Minn. Serial No. 558,570.

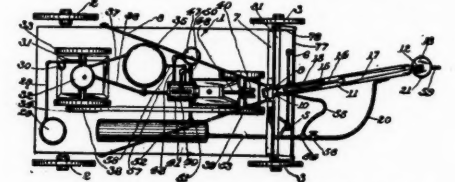
In a traction engine, a driving shaft, a power transmission sleeve on said shaft having thereon two pinions, a countershaft, driving gears thereon, a clutch for connecting the sleeve to rotate with the driving shaft, an idler shaft, an idler sleeve thereon provided with



gears adapted to be placed in or out of mesh with said driving gears, one of said idler gears being adapted to mesh with the pinions on the transmission sleeve, and means to position said idler sleeve so that said last named gear will mesh with either one or the other of said pinions on the transmission sleeve thereby effecting driving connection for rotating the countershaft at different speeds.

### 1,014,293. EXCAVATING-SCOOP. William H. Gade, Iowa Falls, Iowa. Serial No. 649,989.

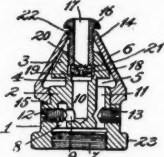
A drag line excavating scoop, having a body, a lifting bail pivotally connected to the upper edge thereof to the rear of the center of gravity, another bail rigidly connected to project beyond the open front end of said body, a drag line bail pivotally connected to the rigid bail and



extending forwardly of said rigid bail, a rod carried by the drag line bail and in line with the drag line at all times, and a flexible connection of a fixed length having one end fast to the forward upper ends of the body, the body portion being slidable through the apex of the lifting bail while the other end is slidably connected to the rod of the drag line bail.

### 1,014,324. SANITARY DRINKING-FOUNTAIN. Philip Mueller and Anton C. Schuermann, Decatur, Ill., assignors to H. Mueller Manufacturing Co., Decatur, Ill., a Corporation of Illinois. Serial No. 617,477.

A drinking fountain comprising a nozzle, the body of which is formed with passageways for independent streams of water, a deflector spaced a short distance above the top of the body over one of said passageways, a shell provided with an opening in its outer end inclosing said deflector and removably connected at its other end to the body, a narrow annular



space separating the shell from the deflector, and a nipple extending inwardly through the opening in the outer end of said shell and threaded into said deflector, and provided with a bore in communication with the other passageway, said nipple being slightly less in diameter than the opening to form an annular outlet for water.



## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK.	ADDRESS INQUIRIES TO
<b>STREET IMPROVEMENTS</b>				
New York	New York	Jan. 18, 10.30 a.m.	Pav. with asph. blocks & bitum. pav't on concrete foundations several sts. and constrn. sidewalks and curbs.	Pres. Boro. Bronx.
Alabama	Selma	Jan. 19, noon	Laying 1,000 sq. yds. vitrified brick, 2,000 sq. yds. cement pavement, 12,000 sq. yds. wood block, vitrified brick, bitulithic, asphalt, asphalt block, concrete or Hassam on concrete base, bituminous binder macadam on chert or screened foundation, 4,500 lin. ft. granite curb & appur.	Julien Smith, City Eng. Stanley Strubel, County Comm.
Ohio	Cincinnati	Jan. 19, noon	Repairing Forest avenue.	J. V. Huntress, County Auditor.
Texas	San Antonio	Jan. 20, 11 a.m.	Re-surfacing and grading a number of roads.	F. J. Portlock, Road Eng.
Virginia	Norfolk	Jan. 20, noon	Constrn. clay road bed and crushed stone road.	O. D. Garratt, Auditor.
Indiana	Clifton	Jan. 21	Constrn. gravel roads.	E. P. See, Clk. Bd. Comm.
New Jersey	Jersey City	Jan. 22, 2 p.m.	Widening and improving Bergen avenue.	E. B. See, Clk. Bd. St. & Water Com.
New Jersey	Jersey City	Jan. 22, 2 p.m.	Widening and improving street.	Harry Trippett, Town Clerk.
New Jersey	Montclair	Jan. 22, 8 p.m.	Constructing granite block pavement on concrete foundation, about 34,300 yds.; also 13,700 ft. of curbing.	C. C. Taylor, Village Clerk.
Ohio	Arcanum	Jan. 22	Constrn. 7,000 yds. brick pavement.	F. G. Stockton, Sec. Director. Pub. Service.
Ohio	Toledo	Jan. 22, noon	Constrn. 7,900 sq. yds. paving about market house; also 2,500 ft. clay pipe.	Ben Havens, City Clerk.
Indiana	Kokomo	Jan. 22	Paving with brick, asphalt or wood block; also curb and cement sidewalks.	Town Clerk.
Illinois	Highland	Jan. 23, 1 p.m.	Constr. 12,000 yds. coner. rdwy. & same amount finish macad.	F. G. Dessery, City Eng.
California	Covina	Jan. 23	Paving three streets.	Chas. Wheeler, Jr., City Clerk.
Oklahoma	Muskogee	Jan. 23, 10 a.m.	Paving several streets with asphalt.	Harry Jenkins, City Clerk.
Ohio	Sebring	Jan. 24, noon	Improving several streets.	J. A. Dougherty, City Clerk.
Iowa	Carroll	Jan. 24, 8 p.m.	Improving a number of streets.	C. D. Miller, Ter. Eng., Santa Fe, N.M.
New Mexico	Santa Fe	Jan. 25	Constrn. clay road across Mescalero sands.	Comms. Marion & Hendricks Co.
Indiana	Indianapolis	Jan. 25	Constrn. road 2 miles long; cost, \$8,500.	W. H. M'Millin, Clk., Dir. Pub. Serv.
Ohio	Youngstown	Jan. 26, noon	Grading street and constrn. pavements (4 contracts).	D. D. Barker, Mayor.
Texas	Houston Heights	Jan. 27	Paving 47,200 sq. yds., creosoted blocks, asphalt, bitulithic or concrete.	C. L. Wirth, County Clerk.
Ohio	Akron	Jan. 29, 11 a.m.	Making fill at bridge approach.	Board of Pub. Wks.
Kentucky	Louisville	Jan. 30, 2 p.m.	Improving a number of streets.	County Comm.
Indiana	Bluffton	Jan. 31, 11 a.m.	Constrn. gravel road.	J. N. Stone, County Auditor.
Indiana	Rushville	Jan. 31	Constrn. 7 miles macadam road.	Aetna Eng. Bureau, Engr, Chicago.
Illinois	Rockville	Feb. 1	Constrn. 30,000 sq. yds. brick pavement on concrete base; cost, \$60,000.	City Council.
Tennessee	Johnson City	Feb. 1, 7 p.m.	Constructing street pavements and other improvements.	N. K. Thompson, Street Comm.
New Jersey	Elizabeth	Feb. 1, 8.30 p.m.	Constrn. 10,500 yds. brick pavement, 4,000 ft. curb, etc.	Karl Paine, Pres. Bd. Pub. Wks.
Idaho	Boise City	Feb. 2, 2 p.m.	Constrn. 328,200 sq. yds. asphalt concrete, bitulithic, Hassamite, plain concrete, concrete with cement top, brancrete, Hassam or brick pavement.	H. S. Michaud, County Auditor.
Indiana	Decatur	Feb. 5, 10 a.m.	Constrn. 5 macadam roads.	County Comm.
Indiana	Brownstown	Feb. 5	Constrn. 5,450 ft. road.	J. T. Scott, County Auditor.
Indiana	Vincennes	Feb. 6, 2 p.m.	Constrn. gravel roads.	Board of Pub. Wks.
Connecticut	Hartford	Feb. 6	Paving several streets.	County Eng. Huffaker.
Tennessee	Jonesboro	Feb. 15	Constrn. 21 miles highway.	City of Santiago.
Chile	Santiago	Mar. 10, 10 a.m.	Constrn. 70,000 meters asphalt pavement.	J. T. Bullen, Parish Engineer.
Louisiana	Shreveport	April 1	Furn. 60,000 tons hard rock or gravel.	
<b>SEWERAGE</b>				
New York	New York	Jan. 18, 10.30 a.m.	Constrn. a number of sewers.	Pres. Boro. Bronx.
Missouri	Kansas City	Jan. 19	Constrn. 4,500 ft. 27 and 33-in. pipe; cost, \$30,000.	Rd. Pub. Wks.
Massachusetts	New Bedford	Jan. 19, 8 p.m.	Furn. sluice gates and hydraulic lifts; also tide gates.	W. F. Williams, City Engineer.
Kansas	Fort Scott	Jan. 20	Constrn. clay pipe sewers; cost, \$115,000.	G. M. Sanford, City Clerk.
Ohio	Arcanum	Jan. 22	Constrn. 2,000 ft. sewer.	C. C. Taylor, Village Clerk.
Maryland	Baltimore	Jan. 24	Constrn. sanitary sewer contract No. 80.	Bd. of Awards.
Indiana	Fort Wayne	Jan. 25, 7.30 p.m.	Constrn. sewers in four streets.	Board of Pub. Wks.
Iowa	Fort Dodge	Jan. 29	Constrn. sanitary sewer.	City Council.
Missouri	Hannibal	Feb. 1	Constrn. vitr. pipe and concrete sewers; cost, \$30,000.	B. F. Smiley, City Engineer.
Ohio	Canton	Feb. 1	Constrn. 1½ miles sanitary sewer.	P. H. Webber, City Engineer.
Tennessee	Johnson City	Feb. 1, 7 p.m.	Constrn. 1,600 ft. pipe sewers.	P. F. McDonald, City Comm.
South Dakota	Mitchell	Feb. 5, 8 p.m.	Constrn. 4,000 ft. 8-in. pipe and appurtenances.	N. H. Jensen, City Auditor.
Missouri	Hannibal	Feb. 15	Constrn. 25,000 ft. concrete and vitrified pipe sewer.	W. Y. Youse, City Clerk.
South Dakota	Madison	Feb. 15	Constrn. sewage disposal works.	Wm. Rae, City Auditor.
New York	Watervliet	Feb. 15, 2 p.m.	Constrn. dams and conduits for storm sewer system.	Watervliet Storm Sewer Comm.
Missouri	Hannibal	Feb. 29, noon	Constrn. 19,500 ft. 6 to 12-in. pipe sewers and 4,100 ft. concrete box; estimated cost, \$37,000.	B. F. Smiley, City Engineer.
Indiana	Gary	March 1 (about)	Constrn. sewers, cost \$150,000.	City Clerk.
Texas	Clarksville	April 1 (about)	Constrn. 8 miles sewers, cost \$25,000.	J. R. Webb, City Clerk.
<b>WATER SUPPLY</b>				
Massachusetts	New Bedford	Jan. 19, 3 p.m.	Furn. lead and c. i. pipe.	R. C. P. Coggeshall, Supt. New Bedford Water Dept.
Pennsylvania	Philadelphia	Date not stated	Hauling and laying 24,000 ft. 24-in. wood pipe and 28,500 ft. 16-in. C. I. pipe; constrn. earth dam.	American Pipe & Construction Co.
Georgia	Washington	Jan. 20, noon, re-ad.	Constrn. addition to water works plant.	Boyce Ficklen, Jr., City Clerk.
Iowa	Dubuque	Jan. 22	Furn. and directing 2,000,000 gallons duplex double-acting, motor driven pump.	Board of Water Trustees.
Missouri	St. Charles	Jan. 22	Furn. 2 reinforced concrete storage reservoirs, 1,000,000-gal. capacity, and 5,000 ft. 12-in., 631 ft. 6-in. c. i. pipe, with specials, etc.	C. Edwards, City Clk.
Arkansas	Fort Smith	Jan. 22, 7 p.m.	Building water works system for town.	W. V. Brown, City Clerk.
Oklahoma	Dustin	Jan. 22	Constrn. water works.	W. V. Brown, City Clerk.
New York	Jamestown	Jan. 22	Furn. 470 tons c. i. pipe, 5 tons specials, valves, etc.	Water Dept.
Virginia	Richmond	Jan. 25	Furn. c. i. pipe, valves, hydrants, pig lead, etc.	E. F. Davis, Supt. Water Works.
Michigan	Grand Rapids	Jan. 25	Furn. 375 H.P. water tube boiler.	E. H. Christ, Pres. Bd. Pub. Wks.
Georgia	Macon	Jan. 25	Furn. C. I. water pipe, cost about \$80,000.	Water Commissioners.

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
South Dakota	Chamberlain	Jan. 29, 8 p. m.	Constrn. intake crib, receiving well, pumping plant, two 40-h.p. oil engines, two 350-gal. triplex pumps, piping, etc.	F. K. Berry, Mayor.
Spain	Bilbao	Feb. 1, noon	Filtering and sterilizing the water supply	Secretaria del Excmo.
Oklahoma	Wagoner	Feb. 1 (about)	Extend'g electric light system and installing water works.	W. L. Benham, Engineer, Okla.
Tennessee	Johnson City	Feb. 1, 7 p. m.	Constrn. gravity water supply, approx. 12½ miles 16-in. c. i. pipe, ½ mile 18-in. pipe, 1½ miles 10-in. c. i. pipe and 4,000,000-gal. reservoir	P. F. McDonald, City Commissioner.
Georgia	Bainbridge	Feb. 1	Extending water mains	J. E. Toole, Mayor.
North Carolina	Charlotte	Feb. 1, 8 p. m.	Constrn. reservoir	A. H. Wearn, Clk. Bd. Water Com.
Alabama	Tuskegee	Feb. 14	Completing water supply system for institute	R. P. Taylor, Director.
Minnesota	Stillwater	Feb. 15	Constrn. steel stand-pipe	Bd. Water Comm.; L. W. Clark, Eng.
Illinois	Chicago	Jan. 18, 11 a. m.	Constrn. down draft furnace for pumping plant	L. E. McGan, Comm. Pub. Wks.
Wisconsin	Cumberland	Feb. 27	Laying 4-in. water main	Committee on Fire and Water.
<b>LIGHTING AND POWER</b>				
Arkansas	Clarksville	Jan. 19	Constructing electric light system	F. W. Dunlap, Sec'y Bd. Imp.
Georgia	Washington	Jan. 20, noon	Overhauling and extending electric light power transmission system	Boyce Ficklen, Jr., City Clerk.
Canada	Winnipeg	Jan. 22	Furn. 250-kw. motor generators	M. Peterson, Sec'y Bd. of Control.
Massachusetts	Boston	Jan. 24	Furnishing 11,000 gas mantle lamps	J. E. Mullen, Supt. Dept. Sup.
California	Los Angeles	Jan. 25	Furn. power plant, piping, etc., for county hospital	Board of Supervisors.
Dist. Columbia	Washington	Jan. 27, 11 a. m.	Furn. 2 electrically-driven capstans	R. C. Holliday, Chief Bur. Yds. and Docks, Navy Department.
Wisconsin	Wauwatosa	Jan. 29	Furn. & Install. ornamental lighting fixtures on viaduct	Martin Plehm, City Clerk.
Alabama	Montgomery	Jan. 30, noon	Lightg. sts. & public bldgs. & furn. power from 1 to 10 yrs.	Robt. Tait, City Treas.
Kentucky	Falmouth	Feb. 1	Installing municipal light plant; cost, \$7,500	N. C. Ridgeway, Mayor.
<b>FIRE EQUIPMENT</b>				
Oregon	Astoria	Jan. 27, 2.30 p. m.	Converting horse-drawn hose and chemical wagon into auto apparatus	C. E. Foster, Chief Engineer.
California	Eureka	Feb. 6, 8 p. m.	Furn. automobile combination chemical and hose wagon	City Clerk.
<b>BRIDGES</b>				
California	San Luis Obispo	Jan. 21	Constrn. steel highway bridge	County Supervisors.
Iowa	Esterville	Jan. 23, noon	Constructing several reinforced concrete bridges	W. H. Gibbs, Chm. Supervisors.
Canada	Brant	Jan. 23, 4 p. m.	Constrn. steel bridge	James Warren, Engineer.
Arkansas	Oseola	Jan. 25, 10 a. m.	Constrn. 17 wooden and 22 steel bridges	Drainage District No. 9.
Ohio	Columbus	Jan. 26	Constrn. miscellaneous bridgework	County Commissioners.
Ohio	Cincinnati	Jan. 26	Constrn. bridge over Millcreek	County Comm.; Stanley Strubel, Clk.
Ohio	Carthage	Jan. 26, noon	Constrn. bridge over Mill Creek	Stanley Strubel, Pres. Co. Comm.
Massachusetts	Salem	Jan. 30, 9.30 a. m.	Bldg. bridge over Sangus River	County Commissioners.
Arizona	Phoenix	Jan. 30, 2 p. m.	Constrn. steel bridge 102 feet long	R. A. Craig, Sec. Board Control.
Ohio	Marion	Jan. 30, noon	Constrn. bridge work, 3 contracts	County Comm.
Ohio	Salem	Jan. 30	Constrn. steel superstructure of bridge	Board of County Commissioners.
Pennsylvania	Pawling	Feb. 1	Constrn. 3-span girder bridge; cost, \$30,000	County Comm.
Indiana	Decatur	Feb. 5, 10 a. m.	Constrn. bridge	H. S. Michaud, County Auditor.
Minnesota	Duluth	Feb. 5	Constrn. bridge over Pike River	County Commissioners.
Oregon	Portland	Feb. 16, 4 p. m.	Constrn. reinforced concrete viaduct	A. L. Barbur, City Auditor.
<b>MISCELLANEOUS</b>				
Kansas	Topeka	Feb. 19	Furn. road roller and grader	Board County Commissioners.
Maine	Belfast	Jan. 20, 7 p. m.	Remov. browntail moth nests from trees along highway	E. L. Littlefield, City Clerk.
Pennsylvania	Philadelphia	Jan. 22, 10 a. m.	Furn. inlet and manhole covers and grates; also trees, plants, bulbs, fertilizers, top soils, etc.	Herman Loeb, Dir. Dept. Supplies.
New York	New York	Jan. 22	Constrn. Section 2, Broadway, Lexington avenue subway	Public Service Commission.
New York	Buffalo	Jan. 22, 11 a. m.	Furn. 150,000 white enameled brick for pumping station	F. C. Ward, Commissioner.
Ohio	Cincinnati	Jan. 23, noon	Furn. 42 small, and one large garbage incinerators	Board of Hospital Commissioners.
Massachusetts	New Bedford	Jan. 24, 8 p. m.	Furn. one 4 or 5-seated 1912 model 4-cylinder automobile	W. H. B. Remington, City Clk.
New York	Brooklyn	Jan. 25, 3 p. m.	Furn. and delivering oils to Prospect Park	Pres. Boro, Brooklyn.
Ohio	Youngstown	Jan. 26, noon	Disposal and reduction of carbage	W. H. McMillin, Sec. Dir. Pub. Serv.
Florida	Tallahassee	Feb. 1, 10 a. m.	Building concrete lock in Miami Drainage Canal	J. O. Wright, Chief Engineer.
Virginia	Portsmouth	Feb. 6, noon	Erecting municipal building	Public Property Committee.
Illinois	E. St. Louis	Feb. 7, noon	Constrn. concrete tunnel, 9x7 ft. 95 ft. long	H. D. Sexton, Pres. Trustees.

## STREET IMPROVEMENTS

**Selma, Ala.**—City will construct 1,000 sq. yds. vitrified brick, 2,000 sq. yds. cement pavement, 12,000 sq. yds. wood block, vitrified brick, bitulithic, asphalt, asphalt block, concrete or Hassam on concrete base or bituminous binder macadam on chert or screened stone foundation; about 4,500 lin. ft. granite curb or combined curb and gutter, all necessary storm sewers, inlets, etc.; bids received until Jan. 19; Julien Smith, City Engineer.

**Montgomery, Ala.**—City will receive bids not later than noon, Jan. 30, for purchase of \$60,000 10-year street paving bonds. Robert Tait, City Treasurer.

**Fort Smith, Ark.**—Resolution has been passed for construction of curb and gutter on various streets.

**Helena, Ark.**—City will pave street in Improvement District No. 6, consisting of 25 blocks in residential section.

**Chico, Cal.**—Board of Education of Chico School District has passed motion to advertise for bids for laying of cement sidewalk around Salem Street School. Walk will be of concrete, 6 ft. wide, with parking strip between it and curb.

**Los Angeles, Cal.**—Property owners on Los Feliz road have asked Council to widen that street to 120 ft. between Vermont and 600 ft. east of Holly st. They want land necessary for widening taken from the north side.

**Los Angeles, Cal.**—Delegation representing United States Government, County, City Park Commission and commercial interests of Los Angeles will inspect Arroya Seco Canyon to establish tentative course for automobile road to mouth of canyon. W. A. Gillette, Highway Commissioner, said that cost to build

road through canyon would vary from \$2,500 a mile to \$12,000. Macadamized thoroughfare for automobilizing would cost from \$10,000 to \$12,000 a mile, while it would be possible to construct ordinary mountain gravel road for \$2,500 or \$3,000 a mile.

**Marysville, Cal.**—Property owners along line of D st., between 4th and 5th, have petitioned City Council to pave that block with same material that is now being used on other streets undergoing improvement. City Engineer Meek figured that work would cost \$3,000 under one plan and \$3,500 under another plan. Contracting company submitted figures on asphaltic wearing surface on asphaltic concrete base.

**Oakland, Cal.**—City Council has adopted following resolutions providing for street work: Directing City Engineer to prepare plans, etc., for improving 10th st., from Clay to Market st. Directing City Engineer to prepare plans, etc., for improving 11th st., from Clay to Market st. Directing Superintendent of Streets to notify property owners to construct cement sidewalks in 20 days on 59th, 44th and San Pablo ave. Directing City Engineer to prepare plans, etc., for improving Prospect ave., from Athol to Spruce st.

**Pasadena, Cal.**—Resolutions have been introduced providing for improvement of Franklin ave. and Oak st., Buckeye st., El Molino ave., and certain other streets.

**San Jose, Cal.**—State highway routes have been recommended in resolutions adopted by Board of Supervisors to State Highway Commission. Contemplating that State highways will be built on both sides of bay, and that one will extend down peninsula from San Francisco and that other will be down east side from Oakland

to San Jose. Supervisors recommended that first enter county at Palo Alto, and using roads now in existence, pass through San Jose and on to south by El Camino Real, leaving county near Sargent's. Other, entering county north of Milpitas, will pass through San Jose and Los Gatos and issue near summit on present Santa Cruz rd. County Surveyor has been instructed to make map showing routes recommended.

**Willows, Cal.**—Negotiations have been closed by John Parker, of Butts City, with Halsey & Co., of San Francisco, for Glenn County road and bridge bonds in the sum of \$9,000. Parker was only individual bidder for bonds when they were sold in November, Halsey & Co. and successful bidders promised to let him have amount he wanted at this figure.

**Plymouth, Conn.**—Special meeting of legal voters of town will be held at Town Hall, Terryville, at 8 p. m. Jan. 17 to consider question of instructing Selectmen to make application for State aid for construction or improvement of section or sections of highways.

**Washington, D. C.**—The American charge d'affaires at Montevideo, Uruguay, has forwarded project of law and translation for paving of streets and boulevards in interior and coast cities of Uruguay. Further information on subject may be obtained by addressing the Minister of the Interior, Montevideo. Copy of the papers referred to, as well as English translation, can be obtained from Bureau of Manufactures, No. 7,899.

**Washington, D. C.**—Improvement of streets in Congress Heights is being discussed.

**Lakeland, Fla.**—Laying of brick pavements is contemplated.

**St. Augustine, Fla.**—City Council has



decided to call for bids for paving of Saragossa st. with asphalt macadam.

**Atlanta, Ga.**—Resolution has been adopted to prepare and submit plans for widening Lillian ave., from Murphy to Tift.

**Atlanta, Ga.**—Resolution has been introduced appropriating \$15,000 to repave East Hunter or East Fair sts.

**Waycross, Ga.**—City will construct 45,000 yds. cement sidewalks to cost \$50,000.

**Waycross, Ga.**—Alderman Sinclair has been authorized to advertise for bids for putting down 45,000 sq. yds. of street paving.

**Lewiston, Ida.**—Voters at special election have approved of proposed bond issue of \$23,500 for street improvements. Bids will shortly be called for.

**Chicago, Ill.**—Petition has been presented asking that California ave. be opened from West 26th st. to West 35th st.

**Ottawa, Ill.**—Petition is being considered for paving of South Ottawa.

**Peoria, Ill.**—Hurlburt st., from Reed ave. to Steubenville st. will be paved with brick 40 ft. wide; also City Engineer has been instructed to prepare estimate for paving with asphalt of Madison ave., from Cornhill to Abingdon st. and estimate to surface with asphalt brick pavement on North Monroe st., from Main and Mamilton.

**Indianapolis, Ind.**—Resolutions have been confirmed for improvement of Wallace st., from Washington to New York st., and Alabama st., from Massachusetts ave. to Ft. Wayne ave.

**Indianapolis, Ind.**—Plans for proposed West Riverside boulevard have been approved by Board of Park Commissioners, which will ask contractors to submit estimates of cost of construction work within a short time.

**South Bend, Ind.**—Model roadway little less than three miles long, 49½ ft. wide, grade 24 ft. wide and macadamized 16 ft. wide, has been recommended to Board of County Commissioners in report of viewers on Edwardsburg rd. petitioned for some time ago.

**Creston, Ia.**—City Council will construct following street improvements, to-wit, by paving and curbing: Union st., from the east line of Elm st. to east line of Birch st., 30 ft. wide between curbs. South Elm st., from south line of Union st. to south line of Monroe st., 24 ft. wide between curbs. New York ave., from Railroad Right of Way to point about 350 ft. southwest of south line of Fremont st., 30 ft. wide between curbs. Cherry st., from south line of Montgomery st. to north line of Jefferson st., 24 ft. wide between curbs. Pine st., from north line of Mills st. to north line of School st., 24 ft. wide between curbs. North Maple st., for distance of 300 ft. north from north end of present paving, 24 ft. wide between curbs. North Elm st., from north line of Howard st. to north line of School st., 24 ft. wide between curbs. School st., from east line of Elm st. to west line of Maple st. and from east line of Maple st. to west line of Pine st., 24 ft. wide between curbs. Howard st., from east line of Elm st. to west line of Maple st., 24 ft. wide between curbs. Oak st., from north line of Montgomery st. to south line of Summit st., 24 ft. wide between curbs. Sycamore st., from north line of Adams st. to south line of Montgomery st., 30 ft. wide between curbs. Sycamore st., from north line of Montgomery st. to south line of Mills st., 24 ft. wide between curbs. Sycamore st., from north line of Mills st. to south line of Town Line st., 24 ft. wide between curbs. Spruce st., from north line of Adams st. to south line of Montgomery st., 30 ft. wide between curbs. Spruce st., from north line of Montgomery st. to south line of Mills st., 24 ft. wide between curbs. Spruce st., from north line of Mills st. north for distance of 370 ft., 24 ft. wide between curbs. West Chestnut st., from south line of Mills st. to north line of Montgomery st., 24 ft. wide between curbs. West Chestnut st., from south line of Montgomery st. to north line of Adams st., 30 ft. wide between curbs. West Chestnut st., from south line of Adams st. to north line of southwest Jefferson st., 24 ft. wide between curbs. Southwest Jefferson st., from west line of New York ave. to west line of Stone st., 24 ft. wide between curbs. Sumner ave., from north line of Mills st. to north line of Montgomery st., 24 ft. wide between curbs. Sumner ave., from south line of Adams st. to North line of Southwest Jefferson st., 30 ft. wide between curbs. North Lincoln st., from north line of Adams st. to north line of Montgomery st., 24 ft. wide between curbs. Stone st., from north line of Southwest Jefferson st. to north line

of Adams st., 24 ft. wide between curbs. And by curving and guttering Spruce st., from north end of proposed paving to south line of Howard st., 24 ft. wide between curbs. Said improvement to be bituminous concrete 2½-in. in thickness, laid on a 4-in. Portland concrete base with 3½-ft. concrete combined curb and gutter, except that on Union st., base shall have thickness of 5-in. and by paving with 6-in. concrete paving alley between Pine and Walnut sts., from Montgomery st. to Mill st., 20 ft. in width. All improvement to be constructed in accordance with specifications to be prepared by City Engineer and approved by City Council. Total of five miles of paving and 45,000 ft. curbing. T. S. De Lay, C.E.

**Sioux City, Ia.**—Paving of Morningside ave. has been decided on.

**Fort Scott, Kan.**—Ordinance has been passed providing for construction, grading and macadamizing that portion of National ave., commencing at north end of Marmaton River Bridge and extending north on said avenue to north side of Prater st.; and that portion of Prater st., commencing at west line of said National ave. and extending west on said Prater st. to Good Roads.

**Leavenworth, Kan.**—Resolution has been passed for regrading and paving of alley in block 26, Packler's Addition.

**Crowley, La.**—Mayor Egan and the City Council have secured consent of sufficient number of property owners on Parkerson ave. to assure paving of street from Southern Pacific tracks to north side of Courthouse square. Police Jury has agreed to pay for pavement of Courthouse square. Work will cost about \$50,000, and will be started in spring.

**Lake Charles, La.**—Plans for paving Ryan st., from Pethon Coulee to Shell Beach have been formed.

**Baltimore, Md.**—Forty-one streets are included in plans of Commissioners for opening streets for annex paving in 1912.

**Grand Rapids, Mich.**—Maps of Kent County showing 189 miles of highways to be improved if bond issue of \$600,000 receives approval of voters of county at April election have been received at office of County Clerk Ralph Mosher, and are now ready for distribution.

**Kalamazoo, Mich.**—Plans are being prepared for boulevard to start from West st. around shores of White Lake, and thence to partially circle city.

**Duluth, Minn.**—City Engineer has been directed to prepare estimate of cost of grading Third ave. east from Mesaba ave. to 15th st. and thence along most practicable route to connection with Swan Lake rd.

**St. Paul, Minn.**—City Engineer has been authorized to advertise for bids for asphalt plant, and for two sand sprinklers.

**Hazlehurst, Miss.**—Board of Supervisors has ordered sale of \$75,000 of bonds for District No. 1 of county for purpose of completing roads of district.

**Carthage, Mo.**—Ordinance has been passed for improvement of Seventh st., from Main st. to Grant st.

**Carthage, Mo.**—Plans are now being drawn for traction rock crusher, which will make its own road to travel over. It will not only be good piece of equipment to have here, but good thing to manufacture in Carthage, for general use on roads all over country.

**St. Joseph, Mo.**—Petition has been filed for improving North and South alley between 22d and 23d sts., from south line of Frederick ave. to north line of Colhoun st.

**Libby, Mont.**—The \$125,000 of bonds to be issued by Lincoln County for purpose of constructing roads and bridges have been purchased by N. W. Halsey, of Chicago.

**Elizabeth, N. J.**—Repaving of First st. is being discussed.

**Elizabeth, N. J.**—Ordinances have been passed for improvement of various streets.

**Irrington, N. J.**—Opening of Cummings st., from present terminus to Madison ave. is being discussed.

**Montclair, N. J.**—Mayor Hinck and Montclair Town Council will ask for bond issue of \$500,000 for rebuilding of 75 miles of road. Cost of maintenance of these streets has reached such large figure that authorities have decided that more durable construction should be adopted. Plan put forward by Mayor Hinck provides that all new roads shall be laid to full width of street, with curbstone on either side, and that asphalt or bituminous mixture, instead of clay or earth, be used with broken stone.

**Newark, N. J.**—Immediate repairing of plank rd. is being discussed.

**Trenton, N. J.**—Ordinance has been passed to authorize construction of Drain

No. 99, in Murray st. and Delaware review ave.

**Albany, N. Y.**—State Engineer Bensel has announced that as result of Court of Appeals decision in Albany County highway test case, contracts to amount of about \$4,000,000 will be awarded by Highway Department in about two weeks and for similar amount later.

**Malta, N. Y.**—Bids will be received until 11 a. m., Feb. 1, by Wm. H. Manning, Supervisor, for purchase of \$8,000 worth of State road bonds.

**Mount Vernon, N. Y.**—Resolution has been introduced instructing Commissioner of Public Works to prepare plans and specifications for regulating, grading and paving of South Fulton ave., between 3d and 6th sts., with brick, macadam and bituminous macadam.

**Niagara Falls, N. Y.**—City Engineer Frederick S. Parkhurst will appear before Board of Public Works and urge necessity for construction of almost \$300,000 worth of public improvements. Pavements aggregating \$276,615 will be asked for this year. Engineer Parkhurst has made following estimates on proposed paving: Lockport st., from Main st. to the N. Y. C. tracks, \$60,200; Portage rd., from Buffalo to Pierce ave., \$105,350; 11th st., from Portage rd. to Ontario ave., \$44,000; intersection of Sugar and Whirlpool aves., \$575; 18th st., from Pierce to Ontario aves., \$35,715; 13th st., from Pierce to South aves., \$15,800; Garden ave., from 10th to 11th sts., \$7,100; resurfacing Pine ave., from Main to 8th sts., \$7,875.

**Ogdensburg, N. Y.**—General opinion expressed at meeting of citizens held in City Council chambers was favorable to proposed construction of paved highway from eastern to western limits of city.

**Potsdam, N. Y.**—Number of State engineers are in town making survey for two new roads to be built by State. Both roads are in corporation, one begins in Maple st., crosses bridge and continues down Market and thence up Elm st. to city limits. Other road begins on edge of corporation line in Market st. and ends at corner of Pierpont ave. and Lower Bay st.

**Rochester, N. Y.**—Appropriation of \$20,000 is planned for stoning roads and grading walks.

**Troy, N. Y.**—County Treasurer Riley has sold \$150,000 worth of Rensselaer County highway improvement bonds to W. C. Langley & Co., of New York, for \$156,117.

**Watervliet, N. Y.**—Immediate improvement of 19th st. is being urged.

**Fargo, N. Dak.**—Improvement of roads from St. Cloud, Minn., by way of Sank Center, Osakis, Alexandria, Fergus Falls to Fargo is being discussed.

**Akron, O.**—Ordinances have been passed for improvements to various streets.

**Cincinnati, O.**—Plan has been presented to Council for opening and extending Jefferson ave. to Vine st.

**Cleveland, O.**—Ordinance has been passed authorizing issuance of \$20,000 for purpose of opening street between Ansel rd. N. E. and E. 105th st. N. E. in vicinity of Hough ave. N. E.

**Cleveland, O.**—Ordinance has been passed to re-establish grade of curb lines of E. 48th st., from Chard ave. S. E., to Independence rd., S. E.

**Dayton, O.**—Ordinance has been passed determining to proceed with improvement of Hawthorn st., from 5th st. to German town st.

**Pultney, O.**—Preliminary steps toward making improvements to roads in Pultney Township, Belmont County, O., have been taken at meeting of Township Trustees held at Bellaire when three commissioners were appointed to view various roads throughout township and decide upon which shall be improved.

**Sebring, O.**—Bids will be received until 12 noon, Jan. 22, at office of City Clerk for purchase of \$5,000 worth of bonds for paving of Ohio ave.; \$3,300 for paving of 15th st., from Ohio ave. to Maryland ave.; \$2,400 for paving of 16th st., and \$7,800 for paving of Maryland ave. from 15th st. to 17th st.

**Toledo, O.**—Issue of \$117,000 in 4 per cent. bonds for street improvements has been passed by Council.

**Youngstown, O.**—Resolution will be sent to Council for appropriation of land for opening, widening and extending of Ridge ave. and Pike st. on south side.

**Youngstown, O.**—Ordinance has been ordered drawn for improvement of State st. by paving; also for paving of Poland ave. and remaining part of Bridge st.

**Youngstown, O.**—City Engineer at request of Park Commissioner will make blue-prints of improvements for Lincoln Park, such as driveways, paths and start of mile road from Gladstone entrance to

old Kennedy homestead, which will cost thousands of dollars.

**Freewater, Ore.**—Macadamized road, from Freewater to Washington State line, will be constructed by Umatilla County.

**Altoona, Pa.**—Repairing of 7th ave. is being discussed.

**Erie, Pa.**—Opening of State st., from 26th st. south to city line at 32d st. is being discussed.

**Erie, Pa.**—Petition is being circulated asking that West 10th st. extension be abandoned for the present, and that West 12th st. be extended.

**Erie, Pa.**—Ordinances have been adopted providing that grade of 31st st. from Liberty to Raspberry st. be established; also grade of 28th st. from Liberty to Raspberry sts. and of 29th st. from Chestnut to Raspberry st., and of Laurel st. from 26th st. to city limits be established. To provide for grading, draining and curbing of Prospect st., from Pennsylvania ave. to end of Prospect st.

**Harrisburg, Pa.**—Ordinances have passed first reading as follows: Paving and curbing of Miller st., from 17th to 18th, and paving and curbing of Howard st., from Forrest to Woodbine, and third reading as follows: Opening and grading of 13th st., from Sassafras to Cumberland; grading of Ethel st., from 18th to 19th; grading of Green st., from Maclay to Woodbine.

**Scranton, Pa.**—Plan is being considered for construction of road from Ketcham's corner in Peckville to Jessup across river, and there connect with Moosic Lake rd.

**Sharon, Pa.**—At regular meeting of Common Council first steps have been taken toward paving of 13th st.

**Williamsport, Pa.**—Ordinances have been passed for paving of Neece st., from West 4th to Edwin sts., and for paving of 6th st., from Market to Hepburn, and North st., from Hepburn and Market, Edwin st., from Pine to Market, and Court st., from 4th to North sts.

**Bristol, Tenn.**—Sullivan County Court has unanimously voted \$200,000 additional bonds for extension of pikes now under construction, including Sullivan County section of Memphis-Bristol highway. This brings total bond issue for good roads made by Sullivan County to half million dollars.

**Knoxville, Tenn.**—Knoxville street paving bonds amounting to \$15,000, payable in one, two, three, four and five years, have been bid in by the Knoxville Banking & Trust Co. at par and accrued interest and \$40 premium.

**Jonesboro, Tenn.**—Bids will shortly be opened for construction of that part of Memphis to Bristol highway, which lies in Washington County.

**Memphis, Tenn.**—Board of City Commissioners is considering appropriation of \$62,000 for street improvements.

**Beaumont, Tex.**—Paving of Broadway and Liberty ave. is being discussed.

**Cleburne, Tex.**—Petitions are being circulated for signatures asking Commissioners' Court to call election in Justice Precinct No. 1, of which Cleburne is part, for purpose of voting on \$300,000 bond issue to build good roads and permanent bridges.

**Dallas, Tex.**—Petition has been presented asking that adequate sidewalks be maintained on Main st.

**El Paso, Tex.**—City Council has approved contracts for paving of North Ochoa st., between Missouri and Rio Grande sts., and North El Paso st., between Franklin and California sts.

**Galveston, Tex.**—Upon report of Commissioner Austin giving City Engineer Dickey's estimates for paving alleys in business district it was ordered that bids be invited for No. 1 and No. 2 brick. Estimate for No. 1 brick is \$21,205, and for No. 2, \$17,832, difference of 28 cents a sq. yd. as between \$1.60 and \$1.32 per yd.

**Sherman, Tex.**—Voters of Sherman and immediate vicinity have voted bond issue of \$400,000 for construction of good roads around Sherman. Bonds will be placed on market shortly.

**Terrell, Tex.**—City Surveyor has started out to establish grade for sidewalks on East College st. This is first movement toward building of walks all over town, backed by City Commission.

**Bellingham, Wash.**—Petition is being circulated for construction of State-aid road between Bellingham and Marietta, at cost of \$50,000.

**Morgantown, W. Va.**—Paving of Garrett st. between station and Kirk st. is being considered.

**Beloit, Wis.**—Following streets have been ordered improved: Park ave., from Broad st. to Bushnell st.; Harrison ave., from Broad st. to Bushnell st.; Short st., from St. Paul ave. to E. Grand ave.; Prospect st., from St. Paul ave. to Bushnell st.; College st., from E. Grand ave.

to Bushnell st.; St. Paul ave., from State st. to east side of Short st.; Broad st., from State st. to east side of Mills st.; E. Grand ave., between west side of 3d st. and west side of 4th st. and Back st., from Cross st. eastward throughout its entire length from junction of 3d st. northward to railway switch track crossing.

**Superior, Wis.**—Resolution has been introduced for repaving of Nettleton ave., from south line of West 1st st. to northerly line of right of way of Chicago, St. Paul, Minneapolis & Omaha Railway.

#### CONTRACTS AWARDED

**Brewton, Ala.**—For grading and surfacing 9 miles of road, to R. H. Wright, of Evergreen, Ala.

**Brewton, Ala.**—By State Highway Engineer, Montgomery, Ala., to R. H. Wright, Evergreen, Ala., at \$8,000 for construction of 9 miles of State-aid road from Brewton to Pollard.

**Hamilton, Ala.**—By Marion County Board of Commissioners for erection of pike road from Hamilton to Guin for sum of \$17,350, to A. F. Bearden, of Birmingham.

**Mobile, Ala.**—By City to F. J. Proudfoot, of Mobile, at \$83,295 for wood-block paving, and to Southern Asphalt & Construction Co., Birmingham, Ala., at \$7,660, for asphalt paving on streets in tenth paving venture, including Spring Hill ave., from Broad to Ann st.

**San Bernardino, Cal.**—For improving E st., to E. R. Werdin, of Los Angeles, for \$8,257.

**San Jose, Cal.**—By City for furnishing rock crushers, to Austin-Western Co., at \$4,885.

**Newport, Ind.**—By Commissioners of Vermillion County, for construction of W. F. Pugh Gravel Road in Helt Township, to Geo. B. Tillotson, of Fairview Park.

**Michigan City, Ind.**—By Board of Public Works for paving Willard ave. and Warren st. with asphalt, to the Western Construction Co., of Lafayette, at \$2.25 per sq. yd. for Willard ave., and at \$1.95 per sq. yd. for Warren st.

**Baltimore, Md.**—For constructing Baltimore and Washington blvd., between Beltsville and Contee in Prince George County, a distance of 4.7 miles, to Bush, Moller & Smith, for \$52,507.

**Lynn, Mass.**—To Fred J. Graham for 70,000 bricks, hard burnt, to be used by Street Department in construction of manholes. Graham's price is \$7.50 per 1,000.

**Magnolia, Miss.**—For concrete sidewalk and street crossings, to J. D. Silver & Son, of Alliance, O., at \$12,000.

**Ocean City, N. J.**—By Board of Freeholders for building Sea Isle City turnpike, to Henry Y. Clouting, at \$24,970.80.

**Ocean City, N. J.**—By Board of Freeholders for building Woodbine rd. to Weimer and Brown, at \$13,976.25.

**Rochester, N. Y.**—For grading and constructing walks on Morton st., by Board of Contract and Supply, to F. V. Brotsch, Rochester, at \$8,435.

**Dayton, O.**—By City for grading and graveling of roadway of Troy st., from old to new corporation line to Boyd and Cook at their bid of \$1,852.85.

**Pittston, Pa.**—To McConville & Fitzpatrick, 29½ Pine st., Pittston, for paving Water st. with block on concrete base, at \$2.16 per sq. yd.

**Reading, Pa.**—By Board Public Works, for paving with Mack block portion of Front st., to Bobst Bros., of Reading, at \$1.96 per sq. yd., and with granite block a portion of Greenwich st., at 89 cts. per sq. yd.

**Shawnee, Tenn.**—To Robert Southern, of Rogersville, for grading and macadamizing five miles of road beginning at Cumberland Gap.

**Port Arthur, Tex.**—By City to Lindsey & Smith, Dallas, for 125,000 sq. ft. of concrete sidewalks, and 25,000 lin. ft. concrete curb.

**Jonesboro, Va.**—By Lee County to Robert Southern, Rogersville, Tenn., to grade and macadamize 5 miles of road beginning at Cumberland Gap.

**Seattle, Wash.**—For paving of Dearborn st., to T. Ryan, at \$46,682.25.

#### BIDS RECEIVED

**Indianapolis, Ind.**—By Board of Public Works for paving of La Salle st., from Washington st. to Moore ave., and for paving Oakland ave., from 10th to 13th sts., as follows: La Salle, Hoosier Construction Co., asphalt, \$3.30 per lin. ft.; Republic Construction Co., asphalt, \$3.66; Oakland ave., Hoosier Construction Co., \$2.47; Union Asphalt Construction Co., \$2.40; Republic Construction Co., \$2.63.

**Michigan City, Ind.**—For paving (a) Willard ave. (b) Warren st., with brick

paving as follows: John McGillicuddy (a) 11 bids, according to different classes of brick, ranging from \$25,935 to \$28,063; (b) 10 bids, \$4,765 to \$4,947. Peter Michaely, (a) 11 bids, \$25,942 to 27,139; (b) 10 bids, \$4,664 to \$4,915. W. Hatch & Sons Co., (a) 8 bids, \$25,007 to \$27,135; (b) 8 bids, \$4,515 to \$4,879. Wm. Kissack (a) 3 bids, \$27,263 to \$28,726; (b) 3 bids, \$4,909 to \$5,159. Vincent Millcreek (b) 5 bids, \$4,758 to \$4,894. The Western Construction Co., bid for Trinidad Lake asphalt (a) \$27,109, (b) \$4,796.

**Baltimore, Md.**—By State Roads Commissioners for constructing Baltimore and Washington boulevard, between Bettsville and Contee in Prince George's County, a distance of 4.7 miles: M. J. Grove Lime Co., \$65,230; Crawford Paving Co., \$65,132; Bush, Mohler & Smith, \$52,507; B. B. Gonder \$64,726; Hassam Paving Co., \$76,899.

**Long Island City, L. I., N. Y.**—For streets improvements: Regulating, grading and laying sidewalks in Hancock st., First Ward: Green Construction Co., \$16,930; paving with asphalt block in Crescent st., First Ward, Hastings Paving Co., \$5,746; in Monson st., First Ward, Hastings Paving Co., \$6,064; in Third ave., First Ward, Hastings Paving Co., \$9,420; laying sidewalks in Starr ave., Second ave., O'Grady Bros., \$15,384; regulating, grading and laying sidewalks in Cleveland ave., Second Ward, Wm. Heilmann, Jr., \$6,585; regulating, grading and curbing in Grant ave., Second Ward, Frank J. Clancey, \$5,576; regulating, grading and laying sidewalks in Cypress ave., Second Ward, Chas. A. Meyer, \$8,683.

**New York, N. Y.**—For repairing asphalt pavement in Manhattan Borough.—(a) R. F. Conway Co., Chamber of Commerce Bldg., Chicago, Ill.; (b) Barber Asphalt Paving Co., 30 Church st., N. Y. City: 241,000 sq. yds. asphalt pavement, including binder course where required (a) \$1, (b) \$1.13; 20,000 sq. yds. asphalt pavement by heater method (a) 55 cents, (b) 63 cents; 30,000 sq. yds. foundation prepared for asphalt pavement by drying where required (a) 10 cents, (b) 23 cents; 500 cu. yds. of Portland cement concrete, (a) \$7, (b) \$7; 4,000 sq. yds. old stone pavement to relay, (a) \$1, (b) 67 cents. Totals: (a) \$262,500, (b) \$298,010.

#### SEWERAGE

**Oakland, Cal.**—City Council has adopted following resolution providing for following: Directing City Engineer to prepare proceedings for sewerage E. 12th st., from 40th to 41st aves.

**Lakeland, Fla.**—Bonds in sum of \$150,000 have been voted; half of this amount will be spent in construction of sewerage system.

**Belleville, Ill.**—Landowners of Smith-ton Township, which adjoins Belleville, Ill., on south, will meet at Smith-ton to organize for extension of the Richland Creek Drainage District system now under course of construction to 4 miles south of Belleville, starting point being West 9th st., Belleville. It is proposed to have system extended through Smith-ton and portion of Prairie du Long townships, purposing to have system constructed through St. Clair and Randolph counties to Kaskaskia River.

**Ottawa, Ill.**—System of sewers is under contemplation for northeast section of city.

**Louisville, Ky.**—Louisville Real Estate Association at special meeting went on record in favor of bond issue not to exceed \$2,000,000 to complete Louisville's system of sewers.

**Alexandria, La.**—At meeting of City Board of Aldermen Streets and Drainage Committee made recommendations for extensive improvements in drainage and sidewalk paving. Report was adopted. City Engineer was instructed to prepare plans for proposed drainage and present his report at next regular meeting of board.

**Baltimore, Md.**—City is considering question of borrowing \$100,000 or \$150,000 to make connections of houses with new sanitary sewerage system.

**Duluth, Minn.**—Petition has been received for construction of sanitary sewer in West 4th st., between 38th and 41st aves. Petition has also been received for temporarily grading 9th st., from 7th ave. east to Chester Park.

**St. Joseph, Mo.**—Ordinance has been passed to provide for construction of sewer, together with all necessary manholes, combined inlets and catch-basins, in portion of sewer district No. 51, said sewer to be located in alley between St. Joseph ave. and Savannah ave., from Richardson st. to a point 20 ft. north of north line of Pendleton st.



**New Bedford, Mass.**—For construction of Sections 1 and 2 of intercepting sewer system as follows: Section 1, location A to J. W. Bishop Co., Providence, R. I., at \$98,828; Section 2 to Frank A. Gammino, Providence, R. I., at \$104,244. Unit bids were as follows: (1) Bid of Leo M. Kelly, Brooklyn, N. Y.; (2) Cendella & Co., Milford, Mass.; (3) Frederick E. Shaw, Providence, R. I.; (4) Luke D. Mullen, Boston, Mass.; (5) A. G. Tomassello, Dorchester, Mass.; (6) Bruno & Pettiti, Boston, Mass.; (7) Frank A. Gammino, Providence, R. I.; (8) Coleman Bros., Boston, Mass.; (9) Merrill, Ruckgaber Co., New York; (10) Bush, Moller & Smith, Hartford, Conn.; (11) Geo. Phillips, Boston, Mass.; (12) James E. Bunting, Flushing, N. Y.; (13) Whiting, Turner Construction Co., Baltimore, Md.; (14) J. W. Bishop Co., Providence, R. I. Section 1, Location A:

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Earth exc. I. S.....	26,000 cu. yds.	\$3.25	\$1.27	\$1.62	\$1.40	\$1.25	\$1.25	\$2.00	\$1.50	\$1.50	\$1.25	\$1.43	\$1.20	\$2.15	\$1.26
Earth exc. Pipe S.....	500 cu. yds.	3.00	1.27	2.00	0.75	1.25	2.00	2.00	1.50	1.50	1.64	0.60	1.20	2.00	1.315
Rock .....	5,900 cu. yds.	2.25	2.25	4.00	3.50	4.00	3.50	5.00	3.50	2.50	2.95	3.75	3.50	2.00	2.685
Cofferdam, etc., Jc. Ch .....	4,500	4.50	1,000	975	1,200	600	2,000	1,500	2,000	1,500	2,250	1,000	1,500	375	281
Granite masonry .....	30 cu. yds.	50.00	30.00	50.00	8.00	50.00	30.00	20.00	25.00	22.50	119.00	9.00	65.00	40.00	50.00
Concrete masonry, Jc. Ch. ....	140 cu. yds.	12.00	25.00	13.00	9.00	20.00	10.00	10.00	8.00	12.00	35.65	9.00	15.00	11.00	9.70
Concrete masonry, T. G. Ch. ....	125 cu. yds.	10.00	25.00	13.00	9.00	15.00	10.00	10.00	8.00	12.00	35.65	9.00	15.00	12.00	10.78
Concrete masonry, in sewer .....	4,200 cu. yds.	7.75	7.50	7.80	7.00	8.50	7.25	5.50	7.00	8.10	6.58	7.00	6.25	8.25	7.96
Concrete masonry, pipe sewer .....	50 cu. yds.	10.00	10.00	10.00	7.00	10.00	10.00	5.00	7.00	12.00	18.22	10.00	13.00	20.00	12.25
Pipe Sewer .....	200 lin. ft.	0.75	0.40	0.50	0.65	0.25	2.00	0.50	1.00	1.50	0.62	0.75	0.50	0.30	0.15
Reinforcing bars .....	513,000 lbs.	0.05	0.04	0.045	0.025	0.025	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.016
Lumber in place .....	100,000 ft. B.M.	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Fibre ducts .....	4,000 lin. ft.	0.15	0.20	0.06	0.05	0.10	0.25	0.10	0.10	0.03	0.07	0.10	0.20	0.05	0.05
Pipe underdrain .....	4,000 lin. ft.	0.40	0.50	0.40	0.10	0.30	0.50	0.50	0.20	1.12	0.28	0.10	0.40	0.20	0.15
Section 1, Loc. B—															
Earth exc. I. S.....	15,000 cu. yds.	\$5.75	...	\$3.50	\$4.00	\$3.00	\$2.25	...	...	\$2.75	\$2.50	\$3.50	...	\$5.00	\$1.97
Earth exc. Pipe S.....	100 cu. yds.	3.00	...	1.50	0.75	1.00	2.00	...	...	1.75	2.00	1.00	...	2.00	1.315
Rock excavation .....	800 cu. yds.	4.00	...	3.50	3.50	10.00	4.50	...	...	3.50	20.00	6.00	...	3.00	3.00
Cofferdam, etc., Jc. Ch .....	6,000	6.00	...	975	1,200	600	2,000	...	...	1,500	2,250	1,000	...	375	281
Granite masonry.....	30 cu. yds.	50.00	...	50.00	8.00	50.00	30.00	...	...	22.50	119.00	9.00	...	40.00	50.00
Concrete masonry, Jc. Ch. ....	140 cu. yds.	16.00	...	13.00	9.00	20.00	10.00	...	...	12.00	35.65	9.00	...	11.00	9.70
Concrete masonry, T. G. Ch. ....	125 cu. yds.	16.00	...	13.00	9.00	15.00	10.00	...	...	12.00	35.65	9.00	...	12.00	10.78
Concrete masonry, in sewer .....	5,000 cu. yds.	11.00	...	8.00	7.75	12.00	8.00	...	...	10.15	6.58	8.50	...	9.25	7.31
Concrete masonry, pipe sewer .....	50 cu. yds.	10.00	...	10.00	7.00	10.00	10.00	...	...	12.15	18.22	10.00	...	20.00	12.25
Pipe Sewer .....	100 lin. ft.	0.75	...	0.50	0.65	0.25	2.00	...	...	1.75	0.62	0.75	...	0.30	0.15
Reinforcing bars .....	403,000 lbs.	0.055	...	0.05	0.03	0.03	0.03	...	...	0.04	0.05	0.03	...	0.03	0.016
Lumber in place .....	325,000 ft. B.M.	20.00	...	20.00	20.00	20.00	20.00	...	...	20.00	20.00	20.00	...	20.00	20.00
Fibre ducts .....	4,060 lin. ft.	0.15	...	0.06	0.05	0.10	0.25	...	...	0.04	0.07	0.10	...	0.05	0.05
Pipe underdrain .....	4,100 lin. ft.	0.50	...	0.50	0.25	0.30	0.50	...	...	2.00	0.28	0.25	...	0.20	0.15
Section 2—															
Earth exc. I. S.....	26,000 cu. yds.	\$2.90	\$1.10	\$1.60	\$1.10	\$1.10	\$1.25	\$1.25	\$1.40	\$1.50	\$0.80	\$1.05	\$1.15	\$2.15	\$1.66
Earth exc. Pipe S.....	1,200 cu. yds.	3.00	1.00	1.60	0.65	1.10	1.50	1.00	1.40	1.50	1.11	0.75	1.15	2.00	1.315
Rock excavation .....	4,000 cu. yds.	2.25	2.25	3.50	3.00	4.00	3.00	4.50	3.75	2.50	3.56	3.50	3.25	2.00	2.84
Concrete masonry in sewer .....	6,400 cu. yds.	7.75	7.50	7.50	7.00	7.75	7.25	4.75	7.00	8.10	6.25	6.85	6.15	8.25	7.96
Concrete masonry, pipe sewer .....	200 cu. yds.	10.00	10.00	10.00	7.50	10.00	10.00	4.00	7.00	12.00	18.17	10.00	13.00	20.00	12.25
Pipe sewer .....	2,500 lin. ft.	0.75	0.40	0.50	0.65	0.25	1.25	0.20	0.60	1.50	1.06	1.00	0.50	0.30	0.15
Reinforcing bars .....	718,000 lbs.	0.04	0.04	0.045	0.03	0.025	0.03	0.02	0.02	0.03	0.0425	0.03	0.03	0.03	0.016
Lumber in place .....	150,000 ft. B.M.	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Fibre ducts .....	10,885 lin. ft.	0.15	0.20	0.06	0.05	0.10	0.25	0.15	0.10	0.03	0.07	0.10	0.20	0.05	0.05
Pipe underdrain .....	6,170 lin. ft.	0.40	0.50	0.50	0.10	0.30	0.50	0.30	0.20	1.12	0.28	0.10	0.40	0.20	0.15

**Manchester, N. H.**—Village of Amoskeag will present petition for sewer extending from Independent hose house north to point a little above Goffstown rd., to be joined at corner of Front st. and Goffstown rd. by branch beginning 200 ft. above Maxwell pl. in latter road and then, at height of land turning eastward and extending to river.

**Camden, N. J.**—City will construct following sewers or drains in and along 10th st., from State st. to Vine st., and Erie st., from 6th st. to 7th st., and 7th st., from Erie st. to Bailey st.

**Elizabeth, N. J.**—Ordinance has been passed providing for construction of sewer in Spring st., from Fairmount ave. to Louisa st.

**Paterson, N. J.**—City has now turned over to Passaic Valley Sewerage Commission all of plans, maps, data and reports relating to trunk sewer and results of investigations made by Engineer Allen Hazen on behalf of Paterson in effort to ascertain if local disposal system would not be cheaper for this city than participation in trunk sewer plan.

**Plainfield, N. J.**—Plan of North Plainfield Borough to have sewage disposal beds on Cramer farm in North Plainfield Township is being opposed by wealthy New York men who own fine estates in this vicinity. Property owners have presented resolution of protest to Township Committee and have sent copy to State Board of Health.

**South Orange, N. J.**—Ordinance has been passed for construction of sewers in following streets of following sizes: Vermont st., between Springfield ave. and Burnett ave., 8-in.; Tuscan st., between Springfield ave. and Burnett ave., 8-in.; Wellesley st., between Springfield ave. and Burnett ave., 8-in.; Rutgers st., between Springfield ave. and Burnett ave., 8-in.; Princeton st., between Springfield ave. and Concord ave., 8-in.; Prospect st., between Springfield ave. and Franklin ave., 8-in.; Florida st., between Concord ave. and Burnett ave., 8-in.; Springfield ave., between Prospect st. and Rutgers st., 8-in.; Hilton ave., between Prospect st. and Vermont st., 8-in.; Franklin ave., between Indiana st. and Vermont st., 8-in.

**South Orange, N. J.**—Resolution has been adopted to construct street sewer laterals for connection with joint trunk

sewer in streets of that section generally known as Valley View and approximately bounded as follows: Prospect st., between Sommer ave. and Springfield ave. on south; Oberlin st. on east, to Tuscan rd.; Summit ave. to point approximately within 100 ft. of Oakview ave., to Prospect st., and approximately 100 ft. north of Tuscan rd., on north, to Valley st., and on Valley st. to Girard pl., on west.

**Trenton, N. J.**—Ordinances have been passed authorizing issuance of bonds for construction of various sewers in city.

**Niagara Fall, N. Y.**—City Engineer Frederick S. Parkhurst will appear before Board of Public Works and urge necessity for construction of almost \$300,000 worth of public improvements. He has made following estimates on proposed sewers: Quay st., from Erie to Buffalo aves., \$938; Whirlpool st., from Chilton to Pierce, \$1,730; 11th st., from Portage rd. to Whitney ave., \$1,425; Whirlpool ave. at Sugar st., \$129; 18th st., from Cleveland to Michigan, \$755; enlarge and deepen sewer in 3d st., from Falls to accommodate new fire hall, \$1,320; change lampholes to manholes in Lockport st., \$436; Augusta pl., between 7th and 8th sts., \$810; Townsend pl., between 7th and 8th st., \$764; Chilton ave., from Main st. to Portage rd., \$858. To relieve the flooded condition in 10th st., a sewer from Cleveland to Ontario aves., \$4,000, and in Cleveland ave., from 10th to 11th sts., and from 11th to Lockport st., \$5,950.

**Utica, N. Y.**—Erection of sewage disposal plant is being discussed.

**Black Mountain, N. C.**—City will shortly have surveys made for construction of sewer system and waterworks.

**Hamilton, O.**—Bids will be received until noon Jan. 23 at office of City Auditor for purchase of \$2,500 worth of storm sewer bonds.

**Sebring, O.**—Bids will be received until 12 noon, Jan. 22, at office of City Clerk for \$6,500 worth of bonds to pay for construction of sewer in California ave., between 17th and 21st sts.; Tennessee ave., between 18th and 21st sts.; New York ave., between 18th and 21st sts.; New York ave., between California and New York aves., and in 21st st., between California ave. and New York ave., or that part of village known as "Quaker Hill."

**Ashville, Pa.**—Extension improvements will be made to sewerage system.

**Erie, Pa.**—Ordinance has been passed providing for erection of 9-in. lateral tile sanitary sewer in German st., from 20th st.

**Williamsport, Pa.**—Mayor Stabler has recommended to Councils extension of sewer system and curtailing for present year of new paving.

**Lebanon, Tenn.**—A. J. Casey has been granted franchise to construct sewerage system, including septic tank.

**Lexington, Tenn.**—Ordinance has been passed providing for installation of sewerage system.

**Austin, Tex.**—City authorities are now considering plans for extension of sewer system of Austin which will mean addition of 85 miles of sewer in city. According to estimates now being made extension would cost approximately \$372,405. To this cost would have to be added cost of present sewer system, owned by private corporation, amounting to \$100,000.

**Dallas, Tex.**—Board of Municipal Commissioners has adopted report of Water and Sewerage Commissioner Nelms recommending extension of sanitary sewer to serve district between Cedar Springs rd., Lemmon ave. and Douglas st., extending west to city limits.

**Lawrenceville, Va.**—City has voted \$50,000 bond issue for sewer system, electric light plant and waterworks.

**Pomeroy, Wash.**—Property owners are petitioning for sewer improvements in part of town west of county rd.

**Seattle, Wash.**—City Engineer has submitted estimate of cost of proposed improvements of east side of 4th ave. by construction of sewers to Board of Public Works at \$6,184.80.

**Barboursville, W. Va.**—City has voted \$11,500 bond issue for construction of sewer system.

**Warwood, W. Va.**—City has plans for sewer system; estimated cost \$15,000.

**Ingersoll, Ont.**—Taxpayers have voted \$125,000 for purchase of water works system.

**Montreal, Que.**—City is contemplating addition to sewage farm, Back River, to cost \$50,000.

## CONTRACTS AWARDED

**Mobile, Ala.**—By City, awarded to Sullivan, Long & Haggerty, Bessemer, Ala., at \$19,519.50, to construct storm sewers; about 22,000 ft. terra-cotta and concrete sewers, 6 in. to 6 ft. in diameter.

**Helena, Ark.**—To B. C. Pouncy, of Helena, for constructing sewer system, for \$7,000, in connection with development of the suburb of West Helena.

**San Francisco, Cal.**—By Board of Public Works for construction of Section C of Ingleside outlet sewer to Contra Costa Construction Co., at \$60,500.

**Belleville, Ill.**—By Board of Local Improvements, for construction of Irish Pond sewer district, to H. C. Gass, for \$6,253.

**Atchison, Kan.**—For construction of combination storm and sanitary sewers in sewer district X, to Williams & Sample, Essex Bldg., Kansas City, Mo., for about \$22,000, to include 12,575 lin. ft. tile sewers, 8 to 21-in.; 2,269 lin. ft. concrete sewers, 500 Y junctions, 27 lamp holes, 18 manholes, 2,000 lin. ft. sidewalk to relay, 670 ft. pavement to relay.

**Baltimore, Md.**—By Sewerage Commission, for constructing sewers: Storm Water Contract No. 17: Jones Falls drift catcher—N. A. Middleton & Co., Baltimore, Md., awarded contract, \$5,189.50; Jos. A. Lavezza, Baltimore, Md., \$4,651; B. F. Sweeten & Son, Baltimore, Md., \$7,086. Storm Water Contract No. 18: Storm water drains—Wm. McCarthy & Co., Baltimore, Md., \$111,894.90, awarded contract; Ryan & Reilly, Baltimore, Md., \$126,093.64; Jas. Ferry & Sons, Pittsburg, Pa., \$124,207.75; the Whiting, Turner Construction Co., Baltimore, Md., \$139,239.88; B. F. Sweeten & Son, Baltimore, Md., \$153,143.75. Sanitary Contract No. 78: Lateral sewers in District 20A—Wm. McCarthy & Co., 3 Oliver st., Baltimore, Md., awarded contract, \$121,452; B. F. Sweeten & Son, Baltimore, Md., \$135,226; David M. Andrew Co., Baltimore, Md., \$143,463. Sanitary Contract No. 81: Section No. 5 of High Level Interceptor (contract not yet let)—McDermott Construction Co., 101 N. St. N. E., Washington, \$183,156.20; Ryan & Reilly, Baltimore, Md., \$188,599.25; Frank B. Sweeten, Baltimore, Md., \$193,926; C. B. Clark & Co., 1808 Greenmount ave., Baltimore, Md., \$204,786.50; Jas. Ferry & Sons, Inc., Pittsburgh, Pa., \$237,978.70. Sanitary Contract No. 82: House connections across footways in Districts 25, 27, 28, 34A and 35—Wm. McCarthy & Co., Baltimore, Md., awarded contract, \$45,381; Martin J. Beach, Baltimore, Md., \$49,871; B. F. Sweeten & Son, Baltimore, Md., \$54,505.

**Millburn, N. J.**—For 1,380 lin. ft. 10-in. and 4,930 lin. ft. 8-in. vitr. tile pipe, 22 manholes, 9 flush tanks, to Michael Garafano, of Summit, for \$5,824.

**Mount Vernon, N. Y.**—For construction of 7th st. sewer to Sabino Guarino at \$4,490. Other bids as follows: Frank Nordone, \$4,675; Luigi Morone, \$4,520; James Piro, \$4,600; Louis Petrillo, \$5,127; James Ciarcia, \$4,700.

**New York City, N. Y.**—By Public Service Commission, to the Underpinning & Foundation Co., of 290 Broadway, for Section 3 of new Subway, at \$2,295,086.50.

**Cincinnati, O.**—To Welling & Franz, for construction of sewer in Ravine and right of way east of Woodburn ave., from Lexington ave. to Bloody Run sewer, for \$15,811.

**Springfield, O.**—For construction storm sewer in Belmont ave. to Huonker & Williams, Springfield, at \$10,450.

**Waco, Tex.**—By City to H. B. Gass & Co., Independence, Kans., at \$25,000, to construct additional sanitary sewers; work includes 2,900 lin. ft. 15-in., 12,000 lin. ft. 12-in., 10,000 lin. ft. 10-in.; 6,000 lin. ft. 8-in. vitrified clay sanitary sewer pipe; 108 lin. ft. 15-in. and 96 lin. ft. 12-in. cast iron sewer pipe; P. A. Gorman, Commissioner Streets, Sewers and Public Improvements.

**Waco, Tex.**—By Commissioner of Streets, Sewers and Public Improvements, for furnishing material and constructing sanitary sewers, to N. C. Gass, of Belleville, Ill., at following bid: 850 lin. ft. 8-in. pipe, earth and rock excav., 60 cts.; 1,250 lin. ft. 8-in. pipe, earth and rock excav., 80 cts.; 3,296 lin. ft. 8-in. pipe earth and rock excav., 70 cts.; 1,175 lin. ft. 10-in. pipe, earth excav., 65 cts.; 2,900 lin. ft. 10-in. pipe, earth and rock excav., 90 cts.; 4,905 lin. ft. 10-in. pipe, earth and rock excav., 80 cts.; 2,015 lin. ft. 12-in. pipe, earth and rock excav., 75 cts.; 4,021 lin. ft. 12-in. pipe, earth and rock excav., 92 cts.; 3,000 lin. ft. 12-in. pipe, earth and rock excav., \$1; 2,780 lin. ft. 12-in. pipe, earth and rock excav., 90 cts.; 108 lin. ft.

iron pipe, 14-in., earth and rock excav., \$3.50; 96 lin. ft. iron pipe, 12-in., earth and rock excav., \$2.50; 1,185 lin. ft. 15-in. pipe, earth excav., 86 cts.; 1,693 lin. ft. 15-in. pipe, earth and rock excav., 95 cts.; average rock cut 5 ft. and earth cut 5.5 ft.

**Seattle, Wash.**—By Board of Public Works for construction of sewers and water mains on Dearborn st. to P. J. McHugh at \$36,088.10.

**Cartierville, Que.**—For construction of sewers, at \$3,000, to contractor, Placide Laframboise, Boulevard St. Paul, 1,200 ft. of 9-in. clay pipe.

**Longue Pointe, Que.**—To John McDougall (Caledonian) Iron Works Co., Ltd., for constructing filtration plant at Asylum.

## BIDS RECEIVED

**Tecumseh, Neb.**—For constructing (a) sewer mains and (b) concrete reservoir; following are reported to be bids received: H. C. Gardner, Lincoln (a) \$6,399; (b) \$17,399. M. A. Camery, Harlan, Ia. (a) \$6,793; (b) \$18,600. C. R. McKay, Omaha (a) \$6,480; (b) \$17,475. Lana Construction Co., Harlan, Ia. (a) \$7,080; (b) \$17,500. Inter-Mountain Bridge and Construction Co., Tecumseh, Neb. (a) \$5,984; (b) \$16,729.70.

**Syracuse, N. Y.**—By Board of Contract for construction of sewers, as follows: 15-in. pipe sewer in Emerson ave., from Harbor st. to a point 400 ft. north of Lewis st., and a 12-in. sewer from the last point to Chemung st.: C. T. Hookway, \$4,926; Blanche Gaffey, \$3,113; Samuel Bonn, \$5,982; James Swift, \$4,819; F. S. Sposato, \$4,351. 15-in. pipe sewer in Kenmore ave., from Newell st. to Ostrander ave.: Anthony Sposato, \$1,938; F. S. Sposato, \$2,153; Charles Bonn, \$1,921. 15-inch pipe sewer in Loehr ave., from Hoeller st. to the center of lot No. 1, Loehr tract: Charles Bonn, \$612; Philip Thomas, \$599; C. T. Hookway, \$820; James Swift, \$950; Blanche Gaffey, \$718; A. Sposato, \$796; F. S. Sposato, \$771. 12-in. pipe sewer in Willis ave., from Schuyler st. to Hamilton st., and a 12-inch pipe sewer in Hamilton st. between Milton and Willis ave.: Philip Thomas, \$1,105; James Swift, \$1,227; Alexander Barr, \$979; Blanche Gaffey, \$915; Samuel Bonn, \$1,227; A. Sposato, \$1,012; F. S. Sposato, \$1,243; Charles Bonn, \$1,166.

**Lorain, O.**—By Service Director for construction of two new sewers, one on West 21st st. and the other in Clinton ave.; West 21st st.: Cockell Construction Co., Amherst, O., \$1,083; C. D. Nicola, Lorain, \$1,107; C. E. Chilson, Lorain, \$1,156; M. J. Burke, Lorain, \$1,212, and Faragher & Randall, Lorain, \$1,761. Clinton ave.: M. J. Burke, \$2,489; Ohio Engineering Co., \$2,677; Cockell Construction Co., \$2,824; C. E. Chilson, \$2,841, and Faragher & Randall, \$2,963.

## WATER SUPPLY

**Gadsden, Ala.**—New water reservoir will be constructed.

**Phoenix, Ariz.**—Sum of \$18,000 has been appropriated for extensions to its municipal water system.

**Washington, D. C.**—Announcement has been made that work is to be commenced shortly on construction of pumping station at Poplar Point, so that it will be possible to handle all of sewerage in section south of new Anacostia bridge before close of present year.

**Washington, D. C.**—American consul reports that city in his district is laying 38 kilometers of water pipe, 28 of which are to be purchased from lowest bidder or one adjudged most desirable by Councilmen of municipality. All information, such as lowest prices, cash discounts, terms of payment, c. i. f. certain city (which would be guaranteed by municipality), catalogues, etc., should be contained in bidders' first communications to obviate possibility of advantage accruing to more adjacent competitors, since the need is a very immediate one, work being delayed until material is secured. Illustration of pipe and valves, together with particulars regarding length, diameter, weight, etc., can be obtained from Bureau of Manufactures, No. 7834. Correspondence and literature should be in Spanish.

**Lakeland, Fla.**—Improvements will be made to municipally-owned water and electric plants.

**Madison, Fla.**—City has voted \$30,000 bond issue to purchase local water and light plants.

**Tampa, Fla.**—Resolution has been adopted that Tampa Water Works Co. be ordered to extend its mains on Zack st., from Jefferson to Nebraska; on Nebraska ave., from Zack to Twigg, and place hydrants at certain points thereon as needed; also to change location of two

hydrants on Tampa Bay grounds that interfere with traffic.

**Augusta, Ga.**—Mayor Barrett is strongly in favor of strengthening city waterworks system. It is planned to build another reservoir adjoining present one which will hold about same amount, or possibly more. Additional water main from clear water basin to city is also urged. It is plan of Commissioner of Public Works to run this main through Summerville and down Walton Way, as other main goes down Central ave., and through Monte Sano. Another unit at pumping station is needed, carrying total pumping power of plant to 24,000,000 gal. daily. Present maximum capacity is 18,000,000 gal. It is estimated that this work will cost city not more than \$150,000.

**Columbus, Ga.**—Water Board will petition City Council for \$350,000 for waterworks construction.

**Lawrenceville, Ga.**—Bonds in the sum of \$35,000 have been voted for waterworks.

**Washington, Ga.**—Bids will be received for construction of addition to waterworks.

**Salmon, Ida.**—Voters have authorized bond issue of \$60,000 for purchase and extension of waterworks, and \$5,000 for construction of municipal building.

**Pittsfield, Ill.**—Bonds in sum of \$20,000 will probably be voted for installation of waterworks. Artesian wells will be source of supply.

**Savanna, Ill.**—Special election will be held Jan. 23 for purpose of voting on proposition of bonding city for \$20,000 for purpose of improving waterworks system.

**Newcastle, Ind.**—At special meeting of City Council steps were taken to improve Newcastle water plant. More than \$40,000 will be spent in new mains, pumps, boilers and fuel handling equipment.

**Henderson, Ky.**—Special committee appointed by Common Council of Henderson met with Board of Commissioners and took first definite steps toward public filtration plant for city of Henderson. Result of meeting was that plans were ordered drawn and estimates made by engineers. Rough estimate of cost of this plant was made which will be from \$60,000 to \$70,000.

**Louisville, Ky.**—Ordinances have been passed for erection of fire hydrants in various parts of city.

**Shreveport, La.**—City is contemplating extending waterworks to Queensborough Addition.

**Williamsport, Md.**—Preliminary steps have been taken towards the installation of water works. Engineer S. N. Williams, of Baltimore, made a tentative proposition to put water in town at estimated cost of about \$25,000, town to pay for a certain number of fire plugs. He asked for franchise for the enterprise, with stipulated price for water to be furnished consumers. Plan contemplates erection of standpipe at new school building or at end of Church st., with ordinary gravity pressure of 50 to 60 pounds. Water supply would be drawn from Potomac River above mouth of Conococheague Creek and filtered.

**Swampscott, Mass.**—Representative Quinn of Swampscott has filed in House bill to provide that town of Swampscott may borrow from time to time, not exceeding \$50,000, for purpose of extending and improving its water service.

**Worcester, Mass.**—Bonds in sum of \$100,000 have been sold for development of Asnebumskit water system.

**Red Wing, Minn.**—It is reported that Board of Water Commissioners are considering advisability of installing apparatus at pumping station, so as to pump all city water by electric power.

**Biloxi, Miss.**—Water extension bonds to extent of \$70,000 have been let to H. T. Howard.

**St. Joseph, Mo.**—Ordinance has been passed ordering St. Joseph Water Co. to lay water mains on Sherman st. and erect fire hydrant thereon.

**Manhattan, Mont.**—Bonds in sum of \$25,000 have been voted for installation of waterworks system.

**Winnemucca, Neb.**—Plans are being prepared for installation of waterworks.

**Camden, N. J.**—Five bids for rebuilding of filtration buildings at waterworks have been ordered returned, and new bids will be received on Jan. 18.

**Dover, N. J.**—Water Board is discussing plans for duplicating system for pumping water to reservoirs. In case of accident to present pumping station there is no means of getting water to reservoirs except by gravitation from old reservoirs. Matter of erecting another pumping plant to connect with Clinton st. mains to force water to low pressure reservoir was



talked over, but no definite action was taken. Motive power for pumps was another subject discussed. Board has three methods under consideration—the present system of gas, electricity and generated gas.

**Jersey City, N. J.**—Street and Water Board is making plans for removing all cement water mains and substituting pipe in their places.

**Kenilworth, N. J.**—James J. Dixon, Superintendent of New Orange Park Water Co., at meeting of Borough Council has presented plans prepared by Borough Attorney Groves, of Elizabeth, outlining plans for water system which company desires to install in borough.

**Jamestown, N. Y.**—Construction of 5,000,000-gal. water reservoir on English Hill is being considered by Water Board; also rebuilding of water mains; estimated cost \$100,000.

**North Hempstead, N. Y.**—It is reported that plans have been prepared providing for installation of pumping plant and system of mains to cost \$120,000. It includes 67,000 ft. of mains, with 150 fire hydrants.

**Rochester, N. Y.**—Bonds to amount of \$110,000, representing part of million dollar issue authorized by Common Council on Dec. 28 for waterworks improvements, have been signed by Mayor Edgerton.

**Rochester, N. Y.**—Comptroller Edward S. Osborne is preparing to advertise for bids for sale of \$890,000 worth of bonds to take up city notes, principally for waterworks improvements.

**Watervliet, N. Y.**—Mayor recommends installation of municipal water plant.

**Black Mountain, N. C.**—City will shortly have surveys made for construction of waterworks and sewer system.

**Rocky Mount, N. C.**—City will extend water system to cost about \$3,351.

**Hankinson, N. Dak.**—New water plant is being considered by Board of Aldermen.

**Akron, O.**—Bids will be received until 12 noon, Feb. 10, by City Auditor for purchase of \$815,000 bonds for purpose of purchasing waterworks.

**Hamilton, O.**—City Council has passed semi-annual appropriation ordinance appropriating about \$200,000 for various departments; \$29,000 will be given to waterworks.

**Navarre, O.**—Ordinance has been passed for issuance of \$25,000 worth of bonds for construction of water works system.

**New Lexington, O.**—Ordinance has been passed by Council directing Mayor and Clerk to enter into contract of lease with New Lexington Water Co. for system of waterworks.

**Springfield, O.**—Ordinance will be presented to Council authorizing bond issue of \$50,000 to provide lake for Snyder Park.

**La Grande, Ore.**—Construction of Union water system is assured, bond issue of \$12,000 having been sold to Keeler Bros., of Denver.

**Portland, Ore.**—Petitions are being considered asking Water Board to lay 10-in. main along waterfront in Sellwood.

**Woodburn, Ore.**—Bids are required for purchase of \$25,000 worth of municipal water bonds.

**Williamsport, Pa.**—Councils have approved of resolution to purchase waterworks.

**Lexington, Tenn.**—Ordinance has been passed providing for installation of waterworks system.

**Decatur, Tex.**—City has voted \$18,000 of bonds to purchase and repair waterworks and electric light plant.

**Fort Worth, Tex.**—At meeting of Commission, Water Commission asked for loan of \$80,000 from some of sinking funds held by city for construction of 400,000-gal. standpipe, construction of some filter galleries and extension of water mains, all of these improvements having been recommended by N. Werenskiold, hydraulic engineer, of Dallas, who is advising Water Commission.

**Uvalde, Tex.**—Uvalde Waterworks Co. is receiving bids on installing 150 horsepower boiler and of laying 12-in. mains in business portion of town. They also propose installing pumps and other appliances in keeping with other improvements.

**Waco, Tex.**—Water Commissioners are considering proposition to install filtration plant.

**Lawrenceville, Va.**—City has voted \$50,000 bond issue for waterworks, electric light plant and sewer system.

**Norfolk, Va.**—Common Council has authorized Water Commission to apply to Legislature or to Congress in name of city, for such legislation as Commission may deem necessary in acquiring most suitable water supply for city.

**Spokane, Wash.**—Plans for high pressure water main system to cost \$200,000

for better fire protection in downtown district are being considered.

**Bellaire, W. Va.**—Ordinance has been passed authorizing Director of Public Service to expend \$1,200 for repairing pump at waterworks.

#### CONTRACTS AWARDED

**Oakdale, Cal.**—By Directors of Oakdale Irrigation District for building the 300 miles of canals and laterals to Utah Construction Co. This will bring under water one of most fertile spots in San Joaquin Valley. Amount of the contract approximates \$1,250,000.

**Tremont, Ill.**—By Village Board for laying of water mains in Tremont, to J. D. Thompson, of Peoria.

**Roseland, La.**—By Town Board to X. A. Kraemer, of Magnolia, Miss., for plans of artesian well to be located in Roseland.

**Gloucester, Mass.**—By Board of Water Commissioners for furnishing carload of small pipe to J. H. Cunningham, of Boston. Specifications called for 500 ft. of 3-in., 6,000 ft. of 2-in., 500 ft. of 1½-in., 3,000 ft. of 1-in., and 1,000 ft. of ¾-in. in random lengths, and a special lot of galvanized full weight, wrought iron pipe, plugged and reamed with threads and couplings, 3,000 ft. of 2-in. and 5,000 ft. of 1-in. Mr. Cunningham's bids were as follows: 3-in., 23 52-100 cents; 2-in., 10 53-100 cents; 1½-in., 7 1-100 cents; 1-in., 5 14-100 cents; ¾-in., 3 58-100 cents. On the special lot he bid as follows: 2-in., 11 9-100 cents; 1-in., 5 77-100 cents.

**Lynn, Mass.**—To Standard Cast Iron Pipe & Foundry Co., of Boston, for 16,600 ft. of water pipe, ranging from 4 to 16-in., and 15 tons of special castings at \$21.70 per ton for pipe. Special castings will cost 2 3-10 cents per lb.

**Minneapolis, Minn.**—For valves as follows: To the Roe-Stephens Manufacturing Co., Detroit, Mich., for 10 16-in., at \$60.50 each; to J. B. Clow & Sons, Chicago, Ill., for one 30-in., at \$255 each; one 48-in. at \$495, and two 48-in., at \$695 each.

**Wapato, Wash.**—To Fairbanks, Morse Co. for installation of pumping house at \$7,497.

**Milwaukee, Wis.**—To Nordberg Manufacturing Co. for furnishing and erecting three pumping engines and accessories in Lake View station of Chicago Waterworks Department at \$274,200. Pumps have capacity of 25,000,000 gal. daily.

#### BIDS RECEIVED

**Wilmington, Del.**—By Board of Water Commissioners for new horizontal water turbine wheels and the triplex pumps to be installed at the pumping station: Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., \$11,000 for the 4,000,000-gal. triplex pump, and \$6,550 for the 2,000,000-gal. pump; Risdon Alcott Turbine Co., Mt. Holly, N. J., \$3,300 for the 80,000,000-gal. daily discharge wheel to be erected on foundations supplied by the city, and \$3,000 for the 40,000,000-gal. well. Other bidders for this work were Camden Water Well Works, Camden, N. J., \$3,864 and \$2,983, respectively; S. Morgan Smith Co., Holyoke, Mass., \$4,500 and \$3,700.

#### LIGHTING AND POWER

**Marysville, Cal.**—Representatives of Pacific Gas & Electric Co. have been before City Council with proposition to engage in five-year contract on city's street lighting. At present city has no contract with lighting company.

**Princeton, Cal.**—Northern California Power Co. has purchased two lots in Princeton from Sacramento Valley Irrigation Co. It is intention of power company to install a sub-station, work on which is to be commenced at once.

**Sacramento, Cal.**—Bid of Pacific Gas & Electric Co. for lighting city has been accepted, which means city, during 1912, will pay \$6 per month for ordinary street lights, and \$4.40 per month for electrolights containing five arc lights each.

**Washington, Cal.**—Representatives of Bureau of Lighthouses, Department of Commerce and Labor, have submitted to department report on plans for improvement of range lights at entrance to San Francisco Bay.

**Yuba City, Cal.**—At joint meeting of Boards of Supervisors of Sutter and Colusa Counties resolution was passed to enter into agreement with Northern Electric, Marysville and Colusa branch, for each county to pay \$80,000 toward construction of bridge across Sacramento River at Meridian.

**Lakeland, Fla.**—Improvements will be made to municipally-owned electric and water plants.

**Madison, Fla.**—City has voted \$30,000 bond issue to purchase local light and water plants.

**Tampa, Fla.**—Matter of lighting Franklin st. with boulevard system is being discussed.

**Americus, Ga.**—City will shortly vote on \$60,000 bond issue for electric light plant.

**La Salle, Ill.**—Installation of new lighting system is being discussed.

**Springfield, Ill.**—At special meeting Park Board decided that new boulevard lamps to be placed along South Grand boulevard, from Sixth st. to west end of Washington Park, should consist of cast iron standards instead of sheet iron, as on Fourth st., and should have one lamp instead of 100 candle-power electric cluster.

**Richmond, Ind.**—Question of granting gas franchise upon expiration of present contract held by Richmond Light, Heat & Power Co. will be considered by Board of Public Works.

**Haverhill, Mass.**—Question of establishing electric lighting system is being discussed.

**Lynn, Mass.**—Detailed plan for better lighting of business district, involving erection and maintenance of 101 poles and equipment where there are now but 35 arcs, has been submitted to Municipal Council by committee from Lynn Board of Trade; estimated cost \$12,000, and expense will be borne by public subscription, providing Municipal Council agree to pay for electricity.

**Marquette, Mich.**—Common Council has appointed special committee with authority to make thorough investigation of proposition that city engage in gas business.

**Chillicothe, Mo.**—City Council at adjourned meeting passed ordinance setting Monday, Jan. 22, as day for holding special election to test sense of voters of Chillicothe in regard to issuing of \$10,000 in bonds for extension of Chillicothe light plant.

**Camden, N. J.**—Following recommendation from Mayor, City Council has revived municipal lighting plant proposition, and committee has been named to take up question.

**Newark, N. J.**—Installation of municipal lighting plant is being discussed.

**Paterson, N. J.**—Plan is being considered for improvement of lighting system.

**Pulaski, N. Y.**—Town Board of Richland has granted franchise to Pulaski Electric Light & Power Co., permitting company to erect poles and power lines along highways through town.

**Fargo, N. D.**—Electric light plant bonds to amount of \$10,000 have been ordered advertised for sale.

**Akron, O.**—Councilman Vance has presented to Council resolution directing Board of Control to secure expert for purposes of getting plans and estimate of cost of municipal light, heat and power plant. It was referred to committee and favorable report followed.

**Cleveland, O.**—First step in city administration's campaign to give city municipal lighting plant, with electricity at 3 cents a kilowatt was taken when Mayor Newton D. Baker wrote Cleveland Electric Illuminating Co. intimating that unless company should agree to sell its plant to city at its actual physical value municipal competition eventually would absorb the field. At recent election people voted in favor of \$2,000,000 bond issue for municipal lighting plant. Mayor suggested board of three to decide on value of company's plant, its findings to be submitted to people for ratification.

**Columbus, O.**—New Council Committee on gas and electricity will meet to consider resolution introduced in Council providing for extension of electric light plant to enable it to enter commercial field.

**Defiance, O.**—The Defiance Utilities Co. has applied for 25-year franchise to install throughout city appurtenances necessary for transmission of electric current for lighting and power purposes.

**Greenville, O.**—Board of Control met and authorized Director of Public Service to enter into contract with Greenville Electric Light & Power Co. for lighting of streets of Greenville for period of 8 years.

**Hamilton, O.**—City Council has passed semi-annual appropriation ordinance appropriating approximately \$200,000 for various departments. Gas Department gets \$44,000, and electric light, \$30,000.

**Muskogee, Okla.**—In return for 10-year extension of its franchise Muskogee Gas & Electric Co. is willing to furnish 11-cent rate instead of 14-cent rate as at present, to make special concessions to city and county on lighting contracts and to pay over to city 1 per cent. of its gross earnings every year.

**Sharpsville, Pa.**—Installation of municipal electric lighting is being favorably discussed.

**Weatherly, Pa.**—City has voted to borrow \$10,000 for municipal light and power plant.

**Lexington, Tenn.**—Ordinance has been passed providing for establishment of electric light plant.

**Dallas, Tex.**—At meeting of Board of Municipal Commissioners secretary was instructed to advertise for bids for lighting streets of Dallas, upon recommendation of Commissioner Lee. Mr. Lee had already secured price of \$56 per light per year from Dallas Electric Light & Power Co. It was decided that under charter provisions there might be necessity for advertising for bids. Contract will, it is believed, be awarded at price of \$56 per light.

**Decatur, Tex.**—City has voted \$18,000 of bonds for purchase and repair of electric light plant and waterworks.

**Galveston, Tex.**—Commissioner Austin has recommended installation of following street lights: Avenue N½ and 22d st., Avenue P and 20th st., Avenue M and 38th st., in rear of Galvez Hotel; 40th and Winnie and on Boardway at the following street intersections: 26th, 38th, 29th, 31st, 32d, 34th, 36th, 38th and 40th. Upon motion of Commissioner Kempner it was decided to eliminate seven of nine lights for Broadway and install all others, including 29th and 31st on Broadway.

**Lawrenceville, Va.**—City has voted \$50,000 bond issue for electric light plant, waterworks and sewer system.

#### CONTRACTS AWARDED

**Los Angeles, Cal.**—By Board of Public Works for lighting 3,200 lamps now in use and 500 to be installed during year, to Los Angeles Gas & Electric Co., at \$6.30 per month per lamp.

**Los Angeles, Cal.**—By Board of Public Works, for machinery for city's power plant on aqueduct in San Francisquito Canyon, to Westinghouse Co., for generating machinery, \$72,900, and same company, for transformers and adjuncts, \$90,469. For hydraulic machinery, bid of Union Iron Works, of San Francisco, at \$194,000, is recommended.

**Rochester, N. Y.**—To Fish & Horton, 123 Mill st., for electric work on Buildings 1, 2 and 3 at Exposition Park, for about \$4,596.

**Salt Lake City, Utah.**—By Council, to Utah Light & Railway Co., for street lighting service for next two years, for about 845 arc lamps at \$60 per lamp.

**Seattle, Wash.**—By Board Public Works, Dec. 12, for furnishing and delivering f.o.b. King County, Wash., motor generator set, consisting of 2-phase, 60-cycle, 7,500-volt, alternating current synchronous motor and a 300-600-volt, 500-k.w., 3-wire, direct current starting motor and exciter, etc., to Ft. Wayne Electric Works, of Ft. Wayne, Ind., for \$8,396.

#### BIDS RECEIVED

**Phoenix, Ariz.**—For electric transformers in two lots of 6 each, one lot to be ordered at once and the second to be ordered if desired: Allis-Chalmers Co., of Milwaukee, Wis., \$8,100, 45 days; \$8,100, 60 days. Maloney Electric Co., St. Louis, Mo., \$12,600, 180 days; \$12,600, 180 days. General Electric Co., Schenectady, N. Y., \$10,993, 108 days; \$10,993, 140 days. Westinghouse Electric Co., E. Pittsburgh, Pa., \$11,100, 70 days; \$11,100, 80 days.

#### FIRE EQUIPMENT

**Los Angeles, Cal.**—Fire Commissioners have asked for new engine house near Washington st. and Long Beach ave.

**Napa, Cal.**—City Council has authorized purchase of 500 ft. of 2½-in. fire hose at 85 cents per ft.

**Hillsboro, Col.**—Auto chemical engine will be purchased.

**Pueblo, Col.**—Contract to be entered into between city of Pueblo and Victor Fire Engine Co., of Buffalo, N. Y., has been agreed upon and papers will be signed at regular session of City Commission. Specifications provide for combination auto hose wagon and motor driven pump of 100 horsepower, brake test at 1,000 revolutions per minute, or 84 horsepower A. L. A. M. rating. There will be six cylinders of 5½-in. bore and 6½-in. stroke. They will be geared so as to drive the car at rate of 50 miles hour on level roadway and have pumping capacity of 750 gal. per minute.

**Stamford, Conn.**—Purchase of motor fire engine and car for Fire Chief is being considered.

**Washington, D. C.**—Report from American consular officer in Latin-American country states that firm is about to purchase for local Government quantity of fire-brigade appliances and supplies, including uniforms and also several gasoline fire engines for Fire Department.

Firm wishes to deal directly with manufacturers or their selling agents and desires to receive catalogues and quotations at earliest possible date. No. 7843, Bureau of Manufactures.

**Lakeland, Fla.**—Erection of fire station has been authorized.

**Atlanta, Ga.**—Purchase of auto apparatus and erection of four new stations has been recommended.

**Macon, Ga.**—Council is considering purchase of combination auto truck for Fire Department.

**Des Moines, Ia.**—Fire Commissioner has recommended additional equipment at each station.

**Des Moines, Ia.**—Two motor-driven trucks for fire department will be purchased.

**Muscatine, Ia.**—Chemical engine will likely be purchased for Fire Department.

**Boston, Mass.**—Recommendation has been made that chemical engine now housed on Manet rd., Chestnut Hill, and which constitutes chief fire protection for that section, be replaced by combination automobile engine and hose wagon.

**Chelsea, Mass.**—Additional fire equipment is under consideration.

**Eastampton, Mass.**—Installation of fire alarm system is being considered.

**Gloucester, Mass.**—Communication has been received from engineers of fire department recommending purchase of 1,500 ft. of 2½-in. hose and the addition of 12 hydrants, and has been referred to committee on fire department.

**Springfield, Mass.**—Purchase of four motor-driven combination hose and chemical cars, and two auto hook and ladder trucks has been recommended.

**Worcester, Mass.**—Appropriation is being considered for purchase of auto fire apparatus.

**Escanaba, Mich.**—Combination chemical and hose wagon will be purchased.

**Eisecay, Minn.**—Fire Department is considering purchase of additional apparatus.

**Kansas City, Mo.**—New fire station is to be erected at cost of \$5,800 at 37th and Gould sts.

**Springfield, Mo.**—Purchase of motor engine is recommended by Fire Chief.

**Manchester, N. H.**—Manchester Fire Association, composed of all local insurance agents, has condemned present fire alarm system of Manchester, and unanimously urged upon City Council necessity of immediate installation of complete modern system housed in strictly fire-proof building.

**Garfield, N. J.**—More hose is asked for by Garfield Engine Co.

**Jersey City, N. J.**—Appropriation has been petitioned for purchase of new truck for Station No. 7 on Lincoln st.

**Keansburg, N. J.**—New fire station will be erected.

**Morristown, N. J.**—Prudentown Hose Co. has purchased lot for erection of fire house which it will build shortly.

**West Orange, N. J.**—Fire Chief recommends to Town Council purchase of 1,000 ft. of 2½-in. hose and 50 ft. of chemical hose.

**Niagara Falls, N. Y.**—City Clerk has been authorized to advertise for bids on 3,000 ft. of fire hose and six alarm boxes.

**Tuckahoe, N. Y.**—Appropriation of \$8,000 has been voted for purchase of motor fire engine for Waverly Fire Co.

**Watervliet, N. Y.**—If plans now contemplated by Department of Public Safety are carried out, Watervliet will have automobile fire fighting apparatus that is triple combination of pumping engine, chemical engine and hose wagon. Machine will cost \$9,000, but that is about \$1,200 less than combined cost of steam engine and combination chemical engine and apparatus.

**Wheatland, N. Y.**—Town of Wheatland has sold to Rochester Savings Banks \$4,000 5 per cent. bonds at par. Bonds were issued by Fire Commissioners of Scottsville Fire District, proceeds to be used in purchasing real estate and fire apparatus.

**Williston, N. Dak.**—Mayor has recommended purchase of combined hose and chemical truck.

**Akron, O.**—Bond issue of \$15,000 is being considered for new fire station.

**Springfield, O.**—Purchase of motor fire apparatus is being considered.

**Washington Court House, O.**—Council has authorized purchase of steamer and other apparatus.

**Philadelphia, Pa.**—Motor-equipped fire apparatus other than steam engines, in place of horse-drawn equipment, is likely to be installed at instance of Director of Public Safety Porter, according to report of Committee on Municipal Affairs, which was presented at meeting of Executive Council of Board of Trade in headquarters at Bourse yesterday. Chief Waters, of Fire Bureau, is making investigation into advisability of this change.

**Scranton, Pa.**—Appropriation of \$41,000 for erection of fire station in Tripp Park section has been asked.

**Scranton, Pa.**—City Council is considering installation of motor fire apparatus.

**Harrisville, E. I.**—Fire Wardens have been directed to purchase hose and other necessary fire fighting apparatus and to take charge of work during fire. They were also instructed to organize volunteer hose company, to appoint fire chief and to procure suitable place to keep hose, etc. They were empowered to inspect hydrants that have recently been installed by Pascoag Water Co., and, if satisfactory, to accept them in behalf of fire district.

**Oliveville, E. I.**—Purchase of auto fire truck has been recommended.

**Superior, Wis.**—Appropriation has been recommended for purchase of new auto fire engine.

#### CONTRACTS AWARDED

**Pueblo, Col.**—For furnishing new combination motor hose and engine apparatus for fire department, to Victor Co., of Buffalo, at \$6,000.

**Lynn, Mass.**—American-La France Co. has refused to accept contract for 2,000 ft. of Chieftain hose at 70 cents a foot, which was its bid to purchasing agent recently. As result of their failure to deliver hose, Agent Carleton has awarded contract to second highest bidder, which is Combination Ladder Co., Providence R. I., whose price is 74 cents a foot.

**Montreal, Que.**—By Board of Control to A. Belaire, contract to erect fire station on St. Dominique st., at \$40,500, and to T. Lessard & Son, for fire and police station in Villaray, at \$72,000.

#### BRIDGES

**Indianapolis, Ind.**—Appropriations to the amount of \$63,100 will be asked for bridges, \$30,000 of which will be for bridge over Little Eagle Creek.

**Boston, Mass.**—Additional appropriation of \$25,000 for new bridge over Weymouth Back River was subject of hearing before Committee on Roads and Bridges this morning. Last year's act called for \$80,000, but engineers of railroad company and others argued that it was advisable to build more substantial bridge even if more money was necessary. City officials of Quincy and Mayor Howard, of Brockton, advocated this action. County Commissioner Faunce, of Plymouth County believed in good bridge, but thought too much money was being put into this structure.

**Libby, Mont.**—The \$125,000 of bonds to be issued by Lincoln County for purpose of building bridges and roads have been purchased by N. W. Halsey, of Chicago, who pays premium of \$3,250. Interest rate is 4.74 per cent.

**Trenton, N. J.**—Construction of bridge across Hudson River connecting New York City to State of New Jersey is being discussed.

**Youngstown, O.**—City Engineer Frank M. Lillie is at work drawing final set of plans for erection of four new concrete bridges at Lincoln Park, to cost about \$5,000.

**Toledo, O.**—Council has passed ordinance providing for issuing of bonds amounting to \$135,000 for removal of Cherry St. Bridge to Ash st. Bridge bonds are of 4 per cent. denomination and are for period of 10 years.

**Bridgeport, Pa.**—Montgomery County Commissioners will add 15 or 20 ft. to width of DeKalb st. bridge over canal, and thus effect long-needed improvement.

**Madison, Wis.**—That Algoma st. bridge across Fox River at Oshkosh be replaced by modern structure in one year's time was result of order of Rate Commission.

#### CONTRACTS AWARDED

**Denver, Col.**—To Patterson-Burghardt Brick Co. for erection of Grand Junction Main St. Bridge at \$67,215.

**Baltimore, Md.**—For construction of Monroe St. Bridge over Baltimore & Ohio railroad tracks to McClintock-Marshall Co., of Pittsburgh, at \$15,000.

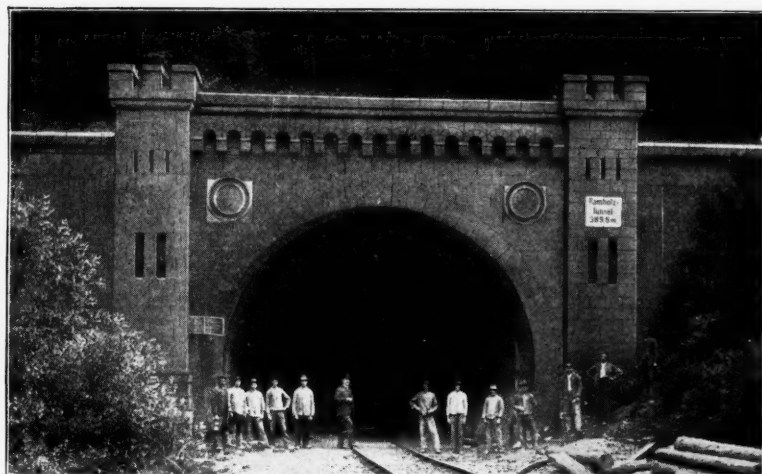
**Duluth, Minn.**—By City for construction of 2-span bridge over St. Louis River, to Continental Bridge Co., at \$6,490.

**Columbia, Miss.**—By Marion County Board to C. T. Washer, who represents Joliet Steel Bridge Co., for erection of steel bridge over Little River at \$4,000.

**Dayton, O.**—By Service Department for construction of canal bridge on Sperling ave., to Al. S. Fox, at bid of \$1,707. This bridge will be reconstruction of old structure that formerly spanned hydraulic where is now Great Miami blvd. on North Main st.

**Toledo, O.**—For constructing 2-leaf bascule bridge across Maume River, at Cherry st., to Scherzer Rolling Lift Bridge Co., Jackson Bldg., Chicago, Ill., at \$132,980.





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1397

**Meadville, Pa.**—To Rogers Co. for repairs necessary to Mead ave. bridge at \$3,000. Expense will be borne by the county and the Northwestern Pennsylvania Railways Co., each paying half cost.

**Houston, Tex.**—For constructing 2 reinforced concrete bridges over White Oak Bayou and branch of White Oak bayou to Gulf Concrete Construction Co., at \$17,200 for larger and \$6,785 for smaller.

### MISCELLANEOUS

**Livingston, Ala.**—Sumter County will expend \$16,500 to \$17,200 to erect jail.

**Clearwater, Fla.**—Pinellas County Commissioners will have plans prepared for jail.

**Lodi, Cal.**—Plans have been presented to City Trustees for proposed City Hall, which will be erected at once.

**San Francisco, Cal.**—The Outdoor Art League, department of California Club, has renewed its petition to Board of Supervisors for public comfort stations. It urges that at least \$30,000 be set aside for constructing them. Location at Lotta's Fountain is particularly recommended for one station.

**Waterbury, Conn.**—Purchase of automobile to be used chiefly in street department is being considered.

**Augusta, Ga.**—Commissioner of Public Works in annual report shows necessity of additional bond issue for public improvements.

**Salmon, Ida.**—Voters have authorized bond issue of \$5,000 for construction of municipal building.

**Fort Wayne, Ind.**—Citizens have voted in favor of proposition to issue \$200,000 of bonds to buy river frontage.

**Indianapolis, Ind.**—Mayor Shank will ask City Council to authorize bond issue of \$40,000 to buy as site for Robert W. Long Hospital tract of land lying west of Hiawatha st., between Michigan and North sts.

**Indianapolis, Ind.**—Board of Public Works has authorized assignment of garbage contract recently awarded to Jesse T. Moorman to newly organized Indiana Reduction Co.

**Shelbyville, Ind.**—Voting machines will be installed in Addison township, Shelby County, if five machines can be purchased for \$3,750, according to appropriation and agreement made by City Council.

**Creston, Ia.**—City is in market for second-hand elevating grader, also second-hand light mountain transit.

**Des Moines, Ia.**—City will probably erect workhouse.

**Waterloo, Ia.**—Resolution has been prepared to be presented to Council which will probably mean erection of new City Hall building.

**Dodge City, Kan.**—By Chairman Board

County Commissioners for constructing court house, from plans of R. A. Curtis, 526-7 Reserve Bldg., Kansas City, Mo., to Geo. Shaul, of Seneca, Kan., for \$93,800.

**New Bedford, Mass.**—Mayor recommends erection of new police station on site of present one.

**New Bedford, Mass.**—Requests for appropriations of \$45,000 and of \$60,000 have been filed with City Auditor by Cemetery Board and Park Board, respectively.

**Duluth, Minn.**—Park Board has sent in request for issuance of \$50,000 of park bonds under special legislative act. Matter has been referred to Committee on Harbors, Parks and Roads.

**Duluth, Minn.**—Board of Public Works has been directed to advertise for bids for construction of new jail at New Duluth, following report from board that plans would be approved by State Board of Control. Conference Committee levied \$5,000 for purpose.

**St. Joseph, Mo.**—Plans for complete park and boulevard system which will encircle city from St. Joseph to Krug Park, and from there to proposed Prospect Park, are being prepared by Park Board.

**Elizabeth, N. J.**—Board of Freeholders has authorized issuance of bonds to value of \$75,000 to cover cost of completing new tuberculosis sanatorium which is being erected at Scotch Plains. This is in addition to \$50,000 previously issued for this work.

**Madison, N. J.**—Adoption of municipal system for disposal of garbage is recommended by Board of Health.

**Buffalo, N. Y.**—City will purchase 18½ acres of land at \$95,000 for Riverside Park extension.

**New York City, N. Y.**—By Park Board for interior finishings in Addition H. of Metropolitan Museum of Art to Richard E. Henningham, at \$315,000.

**Minot, N. D.**—Tentative plans are being made for construction of park system.

**Lima, O.**—To Sam'l. A. Esswein, of Columbus, for general mechanical equipment, which includes boilers, engines, generators, switch-boards and piping in Lima State Hospital, at \$110,369.

**Cleveland, O.**—City Council has passed ordinance authorizing issuance of \$85,000 bonds for construction of subway entrance to park.

**Toledo, O.**—For bascule lifts on New Cherry St. Bridge to Schelzer Rolling Lift Bridge Co., of Chicago, at \$132,980.

**Youngstown, O.**—Improvements costing several thousand dollars are planned by Park Board for city parks this year.

**Youngstown, O.**—Ordinance has been passed for issuance of bonds in sum of \$5,800 for construction of bridge at Elm st. over Andrews Hollow.

**Youngstown, O.**—Board of Control has rejected bid of Fisher, Brooke & Ross for disposal of garbage at 90 cts. a ton. This

was only bid in, and because of this fact another set of bids will be advertised for soon.

**Muskogee, Okla.**—Resolution will be introduced into City Council for municipal ownership of public utilities.

**Erie, Pa.**—Mayor advocates bond issue of \$500,000 for city improvements.

**Erie, Pa.**—Plans of Mayor William J. Stern for \$500,000 bond issue are being favorably discussed.

**Erie, Pa.**—Purchase of automobile patrol wagon is being discussed by City Council.

**Pottstown, Pa.**—Petition is receiving many signatures to increase appropriation for that town's Federal building, from \$75,000 to \$100,000.

**Corpus Christi, Tex.**—City Hall bond issue amounting to \$55,000 will soon be sold, firm of Toledo, Ohio, having agreed to take bonds.

**Dallas, Tex.**—Secretary has been instructed to advertise for bids for construction of Carrollton dam on Elm Fork.

**Galveston, Tex.**—City Commissioners have decided to redeem \$60,000 of the 1895 issue of bonds which fall due in 1915. Commissioner I. H. Kempner was authorized to advertise for their purchase.

**Spokane, Wash.**—Resolution is being discussed for construction of city hall at present site at cost of \$300,000.

**Spokane, Wash.**—The \$875,000 park bond issue has been sold to E. H. Rollins & Sons, of Denver.

**Spokane, Wash.**—Special election is being considered for issuance of \$500,000 municipal bonds.

### CONTRACTS AWARDED

**Hartford, Conn.**—By Board of Trustees of Connecticut Colony of Epileptics to build spur track to proposed site of new building in Mansfield from Central Vermont Railroad at Mansfield Depot, to Ahern Brothers, of Willimantic, contractors, at \$7,950.

**West Duluth, Minn.**—To Jacobson Bros. for West Duluth Carnegie library building. It will be 1-story brick and basement and cost about \$20,000.

**Central City, Neb.**—By County Board, for erection of Court House, to H. Ellenberger & Co., of Chicago, at \$91,959.

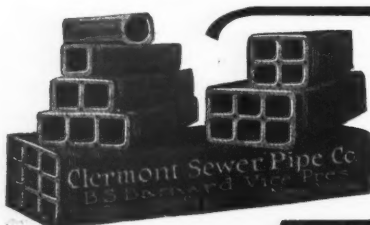
**New Rochelle, N. Y.**—To Wills & Marvin Co., 1170 Broadway, New York, N. Y., to erect court house at \$65,789.

**Nashville, Tenn.**—For erecting State Reformatory for Boys near Jordania as follows: Carpenter work, J. W. Patrick & Co., \$11,750; brick work, Bush Brick Co., \$15,796; cut stone, Southern Cut Stone & Monumental Co., \$590; plastering, Cooper & Ferguson Co., \$3,049; painting and glazing, Isaiah Smith, \$1,392; iron and steel work, Nashville Bridge Co., \$1,009; electrical work, Braid Electrical Co., \$913; cement work, Adamant Stone & Roofing Co., \$925.

## TOO LATE FOR CLASSIFICATION

### BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREET IMPROVEMENTS</b>				
Washington...	Seattle.....	Jan. 19.....	Grading and curbing several streets.....	Board of Public Works.
Massachusetts...	Boston.....	Jan. 23, noon.....	Repairing asphalt pavements, 1912-13.....	L. K. Rourke, Comm. Pub. Wks.
Indiana.....	Indianapolis.....	Feb. 7.....	Building county roads, three counties.....	George W. Baxter, County Aud.
Georgia.....	Rome.....	Feb. 14, noon.....	Grading, curbing, paving sts. with wooden blocks, vitr. brick, Hassam, concr., asph.-macad. or bitulithic, 17,000 sq. yds..	Board of Public Works.
<b>WATER SUPPLY</b>				
Washington...	Seattle.....	Jan. 19.....	Constrn. water mains.....	Board of Public Works.
Massachusetts...	Boston.....	Jan. 23, noon.....	Furn. 6,000 ¾-in. meters and 75 2-in. meters.....	J. E. Mullen, Supt. of Supplies.
<b>BRIDGES</b>				
Louisiana.....	Harvey.....	Jan. 22, noon.....	Repair, and removal of steel traffic bridge.....	Harvey Canal Land & Improv't Co.
Washington...	Olympia.....	Jan. 30, 4 p.m.....	Constrn. substructure of bridge.....	State Highway Comm.
<b>MISCELLANEOUS</b>				
Massachusetts...	Boston.....	Jan. 22, noon.....	Erectg. fire escape on Ashington-Allston annex building....	Schoolhouse Comm.



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Tampa, Fla.  
Muncie, Ind.  
Lowell, Mass.  
Atlanta, Ga.  
Duluth, Minn.  
Los Angeles, Cal.  
Santa Monica, Cal. (2)  
Ocean Park, Cal.  
Duquesne, Pa.  
Sacramento, Cal. (2)  
Stockton, Cal.  
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Rankin, Pa.  
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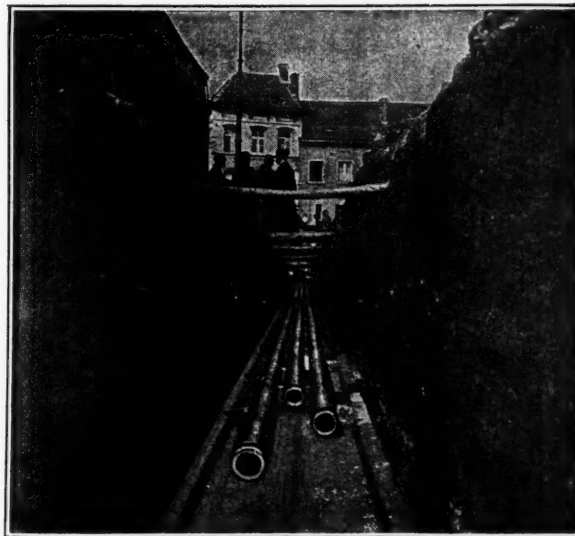
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## STREET IMPROVEMENTS

**Bridgeport, Conn.**—It has been voted by committee to recommend that public hearing be given on resolution of Alderman Peter J. Carroll, providing for laying out of public street in place of alley to west of High School. There is also proposition before Board of Education to widen this alley 6 ft.

**Rome, Ga.**—Plans and specifications for paving East First st. and Third ave. have been submitted by City Engineer. These plans had been approved by Board of Public Works and provided for improving sewer system on those streets and paving intersections between two streets. Ordinance was submitted and adopted for approval of plans.

**Rome, Ga.**—Board of Public Works is advertising for bids for paving of East First st., between Second and Third aves., and Third ave., between Broad and East First. There are 17,000 sq. yds. of pavement and 6,500 lin. ft. of curb. Bids are asked on wood block, Hassan compressed concrete, asphalt-macadam, sheet asphalt and bitulithic.

**E. St. Louis, Ill.**—Public hearing was held on proposed improvement of Fifth and Sixth sts. Without objection original plans for paving Fifth st., from Ohio ave. to Collinsville ave., and Sixth st., from Summit ave. to Pennsylvania ave., were approved.

**Peoria, Ill.**—Fulton st., from Adams to Franklin st., will probably be paved with small brick.

**Peoria, Ill.**—Board has decided to surface brick paving in Niagara pl. with asphalt at cost of \$4.58 per front ft., and also approved ordinance for construction of cement sidewalk 8 ft. in width on both sides of Eaton st., from Water st. to Adams st.

**Michigan City, Ind.**—Board of Public Works has designated kind of material to be used in construction of pavements in Spring, Detroit, Wabash and Pearl sts. Asphalt was named in each case, with exception of Pearl st. Brick was designated for that street.

**Richmond, Ind.**—Resolution has been confirmed for construction of cement sidewalks on East Main st., from 20th to 22d sts.

**Portland, Me.**—Five orders have been referred to Committee on Estimates, Councilman Dougher of Ward 1 introduced two of them, one to resurface Marion st. and another asking for estimate on paving Cumberland, from Washington ave. to Larch st. Councilman Joyce of Ward 2 asked for estimate on paving India st.; Councilman Dooley of Ward 6 estimate for paving Federal, from Temple to Franklin.

**Carthage, Mo.**—Bids have been opened for contract to grade and gravel Main st., from Centennial ave. to Fairview ave., but the one bid, that of Tangner & Brosius, was above estimate, and so contract could not be let. City Engineer has been directed to again advertise for bids.

## CONTRACTS AWARDED

**Anniston, Ala.**—By City for three miles of macadamized State aid road to D. B. Lacy, of Anniston, at \$8,000. Section to be improved is on Anniston and Alexandria rd. in Calhoun County.

**Stockton, Cal.**—By City for improving French Camp rd. to A. A. Sturgeon, at \$3,375.52.

**E. St. Louis, Ill.**—By East St. Louis Board of Local Improvements for improving Exchange ave., from First st. to 7th to Myers Construction Co., of East St. Louis, at estimated cost of \$2,480. Contract for laying sidewalks on Broadway from 6th st. to Tenth, estimated to cost \$15,596, was let to Murphy Construction Co., of East St. Louis.

**Michigan City, Ind.**—To Peter Michaely for construction of Vreeland Hotel alley pavement to extend block east and block west of Franklin st.

## SEWERAGE

**Springfield, O.**—Motion that engineer be instructed to prepare plans and specifications for combined sewer in North st., Light to Western ave. has been carried.

**Seattle, Wash.**—Plans have been approved for construction of sewers on 10th ave. N. E.; estimated cost \$23,000.

## CONTRACT AWARDED

**Seattle, Wash.**—By City for construction of sewers on W. 65th st. to Michael & Jabber Co., at \$12,042.

## WATER SUPPLY

**Central City, Ia.**—Bonds for \$10,000 will be issued for construction of water system.

**St. Paul, Minn.**—Secretary Caulfield will shortly call for bids for 5,500 tons of cast iron water pipe. There will be 40,000 ft. of 6-in. pipe; 4,000 ft., 22-in.; 2,000 ft., 16-in.; 3,800 ft., 24-in.; 9,834 ft. of 30-in., and 10,635 ft. of 36-in. pipe.

**St. Paul, Minn.**—Water Board will receive bids for furnishing 5,500 tons of pipe and for furnishing hydrants, valves, service and valve boxes, and special castings.

## CONTRACTS AWARDED

**Minneapolis, Minn.**—To American Cast Iron Pipe Co. to furnish city with 3,300 tons of water pipe, 6 to 24-in., at average cost of \$24.90 a ton.

**Lincoln, Neb.**—By City for digging two 12-in. walls, to John Henry, at \$5.53 per ft.

**Peru, Neb.**—By City to National Co., of South Bend, Ind., for construction of waterworks system.

## LIGHTING AND POWER

**Springfield, O.**—Ordinance has been passed by City Council authorizing issuance of \$60,000 worth of bonds for purpose of providing for lights of city for 1912. Bonds will bear date of March 1, 1912. Ordinance authorizing issuance and sale of bonds was passed by unanimous vote.

## CONTRACTS AWARDED

**Roseville, Cal.**—By Board of Trustees for electric power for period of five years to Western Power Co. at 1½ cents per kilowatt hour.

**Columbia, S. C.**—By City for furnishing arc lights to Columbia Railway, Gas & Electric Co. for five years, with privilege of terminating at end of three years at one year's notice.

## FIRE EQUIPMENT

**Fort Smith, Ark.**—Fire Chief recommends that all horse-drawn fire apparatus be replaced or changed to motor-drawn; also installation of ladders and other equipment for handling of fires in large buildings.

**Pueblo, Col.**—Fire Chief recommends purchase of motor apparatus.

**Putnam, Conn.**—Purchase of new hose is being considered.

**Rock Island, Ill.**—Purchase of motor apparatus is being considered.

**Muscatine, Ia.**—New chemical engine is being discussed for Alert Hose Co.

**Hutchinson, Kan.**—By very narrow majority of votes people of Hutchinson have decided in favor of \$20,000 bond issue. These bonds will be used entirely for betterment of Hutchinson Fire Department.

**Florence, Mass.**—Purchase of auto truck is being considered.

**Newton, Mass.**—Mayor has recommended purchase of auto chemical and hose car.

**Delanco, N. J.**—Firemen have voted in favor of purchasing chemical engine and new hose.

**Niagara Falls, N. Y.**—Improvements will be made to fire department equipment.

**Syracuse, N. Y.**—Purchase of auto combination hose and chemical car, motor tractors for new engine and hook and ladder truck is recommended by Fire Chief.

**Doylestown, Pa.**—Purchase of auto combination chemical and hose car is being considered.

**Charleston, S. C.**—Purchase of tractor is recommended by Fire Chief.

## BRIDGES

**Richmond, Ind.**—Improvement of West Main st., from bridge to West 5th st. is being considered.

**Lynn, Mass.**—County Commissioners of Essex County have called for bids for rebuilding Fox Hill bridge, between Lynn and Saugus, over Saugus River.

## CONTRACT AWARDED

**Long Beach, N. J.**—By Directors of Long Beach Turnpike Co., of New Jersey, to General Contracting & Engineering Co., New York, for roadway and bridge across Barnegat Bay, from Manahawken on mainland to island of Long Beach. This latter point is about 7 miles from Beach Haven, and new roadway and bridge will connect with mainland ocean boulevard and island Long Beach boulevard.

## MISCELLANEOUS

**New Britain, Conn.**—Several important hearings were granted by Board of Public Works at its regular meeting. Practically all of interested property owners were unanimously in favor of various improvements named in petitions and board accordingly recommended improvements to Common Council.

**Lexington, Ky.**—Ordinance authorizing Mayor to issue and sell Kentucky ave improvement bonds to amount of \$16,000 has been referred to Joint Improvement Committee.

**Marblehead, Mass.**—Movement for town to build new police station will be discussed again this coming March and effort made to provide more suitable headquarters for police than is now available. Sum of \$2,000 was appropriated by citizens of town for purpose of remodeling entire lower floor of old Town Hall for use as police station, but owing to fact that no contractor could be found to do the work for that sum, it was necessary for selectmen to abandon the project.

**Schenectady, N. Y.**—Mayor recommends that committee be appointed to consider the advisability of erecting garbage disposal plant.

## CONTRACTS AWARDED

**Boston, Mass.**—By City Council to Boston Development & Sanitary Co., of Brooklyn, for garbage and refuse disposal for next 10 years at \$1,432,000. It has been put up to Mayor Fitzgerald for acceptance or rejection.

**Rochester, N. Y.**—For furnishing 40,000 ft. of yellow pine, and 120,000 ft. of white oak lumber for use in Department of Public Works to Phelps & Fletcher.

**Seattle, Wash.**—By City for construction of concrete chimney for Refuse Destructor No. 2, to Mat Branigan, at \$2,808.

## PROPOSALS

## STREET PAVING

Boise City, Ida.

Sealed bids will be received by the Board of Public Works of Boise City, Idaho, for paving with Asphalt, Asphaltic Concrete Bitulithic, Westrumite Asphalt, Dolmarway, Hassamite Plain Concrete, Concrete with Cement top, Granerite Hassam or Brick Pavement "With brick along street car tracks" in all streets and parts of streets in paving district No. Seventeen approximating three hundred twenty eight thousand square yards with necessary excavation, gutters and appurtenances as provided for by ordinance No. Nine Ninety-one. Said bids will be received up to two P. M., February 2, 1912, and immediately opened publicly by the Board of Public Works in the City Hall of said city, said pavement to be laid and constructed according to plans and specifications which may be seen at the office of the City Engineer. Each bid must be in accordance with the form of proposal furnished by the Board of Public Works and accompanied by a certified check on some local bank payable to Boise City for the sum of \$2,000 to be forfeited if the successful bidder fails to enter into a contract and furnish a good and sufficient bond in a sum equal to 25 per cent. of the total amount of his bid for the faithful performance of each and every covenant in the contract. The right is reserved to reject any and all bids or to let the work as a whole or in part or for one or more kinds of the above pavements as may appear to the best interest of the city. By order of the Board of Public Works of Boise City, Idaho, this third day of January, 1912.

KARL PAINE, President.

No. 2-3.

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